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Cybernauts and Role-Players

Blockchain Gamers by Genre

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Senior Research Analyst
Michael Bolger



Research Analyst
Alan Lee

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Executive Summary

- **The blockchain gaming space exploded over 2021**, and has begun to come into its own as a distinct sector of the gaming industry.
- The rise of the digital land market in 2021 caused an influx of players to metaverse titles such as Decentraland and The Sandbox, **with the latter rapidly outpacing its older rival in terms of LAND holders.**
- **Earning income has emerged as a driving factor for play-to-earn RPGs** such as Axie Infinity in emerging markets, where game earnings may exceed the minimum wage.
- Gaming NFTs and gaming-focused Layer 2 solutions like Immutable X may be forming **a symbiotic relationship, with games attracting Layer 2 usage and vice-versa.**
- Sorare count of unique users interacting with its Layer 2 solution on Starkware has **risen to 40K since its launch in mid-2021.**

1. Introduction

1.1 Blockchain Games and their Players

Gaming was identified early on as fertile territory for applying cryptocurrency and other blockchain-based technologies. With a large base of users accustomed to dealing with digital assets across networks, it didn't take long for developers to wonder how this new technology might enhance gameplay. Early efforts at creating blockchain games were rudimentary, such as Bitcoin Dice, or the infamous [Cryptokitties](#), which notoriously [clogged up the Ethereum network in 2017](#). Since then, however, the technology has evolved in leaps and bounds, and over the past year we have seen the blockchain gaming industry come into its own, with new projects appearing on the market faster than journalists and researchers can react.

NewZoo placed the size of the traditional gaming market at [\\$175.8B in 2021, predicting that it would grow to \\$200B in 2024](#), while [Statista estimates](#) that there are 3.24 Billion gamers across the globe. This enormous market size is likely driven by the rise of mobile gaming, which opened up the title of 'gamer' to anyone with a smartphone. While in the distant past, this analysis would have only needed to concern itself with console and PC gamers, in the current era gamers are a much broader camp.

Due to the size of this market, any new entrant to the sector could potentially garner a large audience of ready-made gamers. Given that blockchain gaming is beginning to coalesce into its own sector of the broader gaming industry, we felt that it was time to revisit the topic, having previously covered different aspects of this burgeoning sector in 2021. **In this article we will take a look at current trends in the blockchain gaming userbase**, to get a feel for how the new sector is shaping up in contrast to its more established cousin.

For the purposes of this article, we will examine blockchain games according to a number of different genres, namely RPGs, Metaverse games, trading card games and sports games. As there is overlap between these genres in many games, these categories may not fit perfectly, however we hope for our purposes they will suffice to provide an interesting window into the current state of the blockchain gaming userbase.

1.2 The Blockchain Gaming Landscape

We direct readers to [Crypto.com Research's previous look into the blockchain gaming space](#) for an introduction to the ecosystem as it stood in

mid-2021. In short, blockchain gaming is the subset of the video games ecosystem that makes significant use of blockchain technology. While it is at present somewhat loosely defined, it is quickly becoming a distinct sector of the gaming industry.

Rather than the games themselves being in some way tracked on or tied to a blockchain (for example, the game state being recorded on-chain), it is more normal (and practical) to use it for in-game mechanics such as user identity or in-game items (in the form of NFTs). An additional use case, although to date less explored in a gaming context than NFTs, is using cryptocurrency for in-game currency or payment. This has to date been the main use case for Bitcoin in gaming, with [Zebedee](#) and [Satoshi's Games](#) finding ways to integrate the currency into different games with a play-to-earn mechanic.

The blockchain gaming ecosystem saw a cambrian explosion of content in 2021, with the general market bullrun financing a host of new gaming concepts. This was partly made possible by technological improvements on the Layer 1 and Layer 2 side, allowing developers to sidestep the bottleneck that had developed on Ethereum, with game developers such as Sky Mavis creating their own custom Layer 2 networks for their games (in their case, the [Ronin sidechain](#)). As alternative blockchains and Layer 2s have developed, the blockchain gaming has grown alongside them, and has become something of a catalyst for technological progression in the blockchain space as developers scramble to find the fastest and cheapest way to process transactions, and VCs pour money into whichever solution seems to be able to deliver on this.

While the sector is still in its infancy, its growth over the past year has attracted a huge amount of attention from both the crypto community and the Venture Capital world, meaning that funding has poured into the space. As such, it will be worth watching over 2022 to see if this creative momentum can be maintained.

1.3 The Old and the New

Blockchain gaming is maturing in a very different world to that in which traditional gaming grew up. The 80's and 90's presented a very different raft of technological limitations and challenges, and consequently the traditional gaming industry largely grew up to accommodate those limitations. This had significant impacts on the kinds of games that were created, how they were distributed, and who played them.

While it may seem alien to today's teens, video games until relatively recently required specialised hardware (in the form of consoles) that did not connect to the internet (or alternatively, could be played on a PC but could not be downloaded from the internet). The first console to include an internet connection was the long-forgotten [Apple Pippin](#), although most gamers of a certain vintage would

associate the [Sega Dreamcast](#) with the earliest internet connectivity. Even at that point, video games could only be distributed through physical media, such as cartridges or CDs. In addition online shopping was in its infancy, these games could only be purchased in physical shops. Consequently, the actual userbase for traditional games was severely limited to those who could not only afford specialised hardware, but also who happened to live within reach of a Gamestop or similar shop.

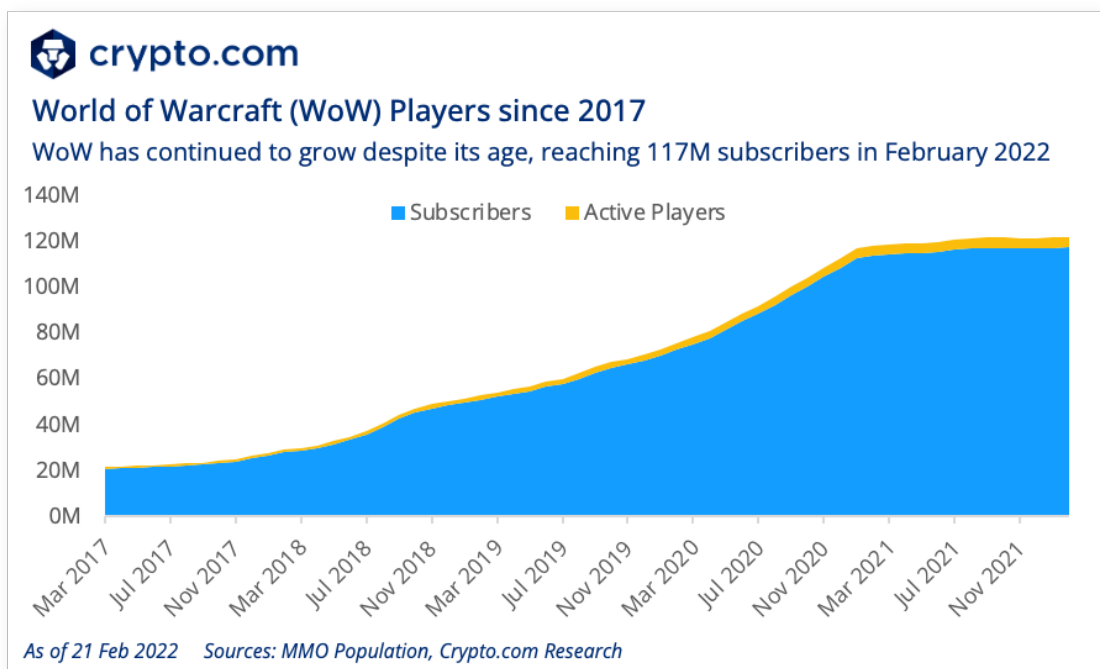
Blockchain gaming, by comparison, has been born into a world of universal access, in which anyone with an internet connection can participate. Games now no longer need to even be downloaded, but can be played on any internet-connected device, hosted as a SAAS product on a remote server. Not only that, access to a blockchain game is open to anyone with a blockchain wallet. The fact that this new market segment has emerged in a golden age for accessibility (by comparison to its more traditional cousin), means that the adoption trend may end up being far shorter - rather than spending decades building up a community, blockchain gaming may be able to attract a greater number of users far earlier in its life cycle.

2. RPGs and MMORPGs

2.1 Adventures in Unknown Lands

The RPG genre is one of the oldest in gaming. Originally a digital version of tabletop RPGs such as Dungeons & Dragons, RPG gaming has taken on a life of its own. Traditionally focused on Tolkien-esque high fantasy, the genre has embraced a wide variation of different themes and styles over time. Two representative examples of RPG series are [Final Fantasy](#) and [Pokémon](#), both of which embody elements of the style in different ways, with the latter being particularly influential for a style of RPG in which battling and breeding monsters form different aspects of gameplay, a style which lends itself very well to integration with NFTs, as Axie Infinity has shown.

Over time, as broadband connections became more common, Massively Multiplayer Online RPGs (MMORPGs) such as [Everquest](#) and [World of Warcraft](#) emerged, allowing players to interact with each other across the globe in real-time. These online multiplayer environments represent some of the earliest examples of metaverses, albeit designed for entertainment purposes rather than to be functional environments for more mundane or real-life use cases.

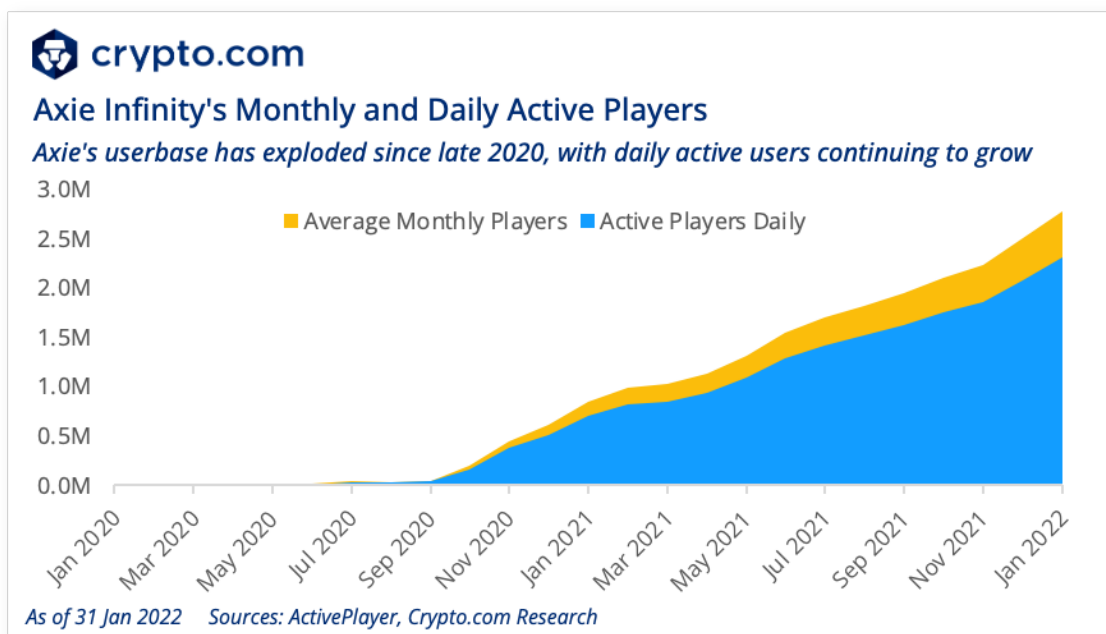


While the RPG space is one of the more developed genres of traditional gaming, it is still in its infancy when it comes to Blockchain. Nonetheless, RPGs are very well-suited to blockchain integration, due to their usual focus on

in-game items, commerce and collecting. Games like Eve Online have sufficiently developed in-game economies that the developers release a [monthly economic report](#). The introduction of in-game items that can be traded freely on open markets in the form of NFTs may in time prove to be a game-changer for many of these in-game economies, which are at present walled gardens contained solely within the game.

2.2 Blockchain RPGs and their Players

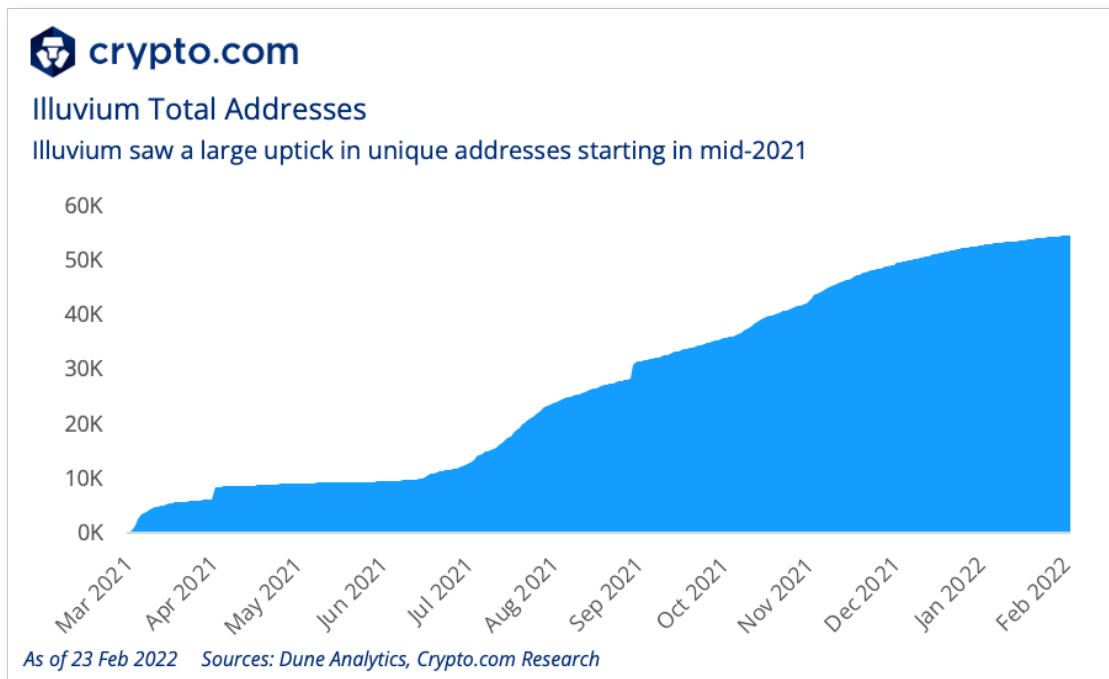
One of the most prominent RPGs to hit the blockchain gaming scene is [Axie Infinity](#), a Pokémon-inspired game in which users breed and battle monsters, which are themselves NFTs. **Axie is notable in that the developers took the step of creating their own sidechain, known as [Ronin](#), in order to sidestep Ethereum’s fees and network congestion.**



Axie is representative of a class of games that does not have a developed parallel in the traditional gaming world, namely the play-to-earn genre, in which players can earn tokens as they play. This has been a key factor in driving Axie’s user growth, [particularly in countries undergoing economic strife](#), where it represents a means of generating income outside of the normal fiat economy.

Another title that has grabbed headlines over the past year is [Illuvium](#), an open-world RPG built on Ethereum via the Immutable X Layer 2 protocol. While Axie focuses on breeding monsters, Illuvium combines standard RPG mechanics with a digital land system and DeFi mechanics such as yield farming. It also features its own monster-collecting system, in the form of ‘Illuvial’ monsters. The

game rode the bull market wave in 2021, seeing a steep increase in addresses interacting with the token during the second half of the year, at present approaching 60K total unique addresses. While this does not necessarily translate to the same amount of players (additionally, it does not imply that 60K users are currently holding ILV), it shows that the game remains in demand despite an overall market slowdown at the beginning of this year.



3. Metaverses

3.1 Neuromancy for the Web3 Age

Of all the blockchain gaming genres that have sprung up over the years, nothing has rivalled the hype generated by metaverse games to date. The concept conjures up memories of digital worlds in Cyberpunk novels like [Neuromancer](#) and [Snow Crash](#), in which protagonists delve into 3-dimensional metaverses. For some this conjures up images of new possibilities and opportunities, for others it seems cynically corporate and dystopian. Either way, the concept appears to have staying power for the time being.

The concept often appears in crypto media as 'The Metaverse'. However, this description may be somewhat misleading, as in reality it is a genre of different projects rather than a single monolithic environment. **Strictly speaking, a**

metaverse is a 3D interactive environment. This overlaps somewhat with traditional games (MMORPGs in particular), however a metaverse title in this context may be distinguished by having a general or functional purpose, rather than existing purely for entertainment (although this division is far from clear-cut in practice). This distinguishes a metaverse (such as the one currently under construction by Meta) from something like World of Warcraft, the former intending to be a primarily functional environment for meetings, events, displaying art, commerce, lectures etc. While a variety of different games (such as Axie Infinity) are commonly included on lists of Metaverses, for the purposes of this article we will restrict our discussion to 3D interactive environments that make use of blockchain technology in some capacity.

While the genre is still in its infancy, with the hype somewhat outweighing the reality on the ground for the moment, metaverse titles are likely to grow for the foreseeable future. [Facebook notably changed its name to Meta](#) in an effort to pivot towards metaverse-orientated products, which kicked the hype into high gear later in 2021, causing the concept to become mainstream. The company released [an extensive video outlining their plans for the concept](#), which suggests that metaverse technology will have high-profile backing and development for the foreseeable future. Regardless of what one thinks of its current condition and the hype surrounding it, it is hard to see the concept disappearing over the next couple of years without a major pivot by Meta.

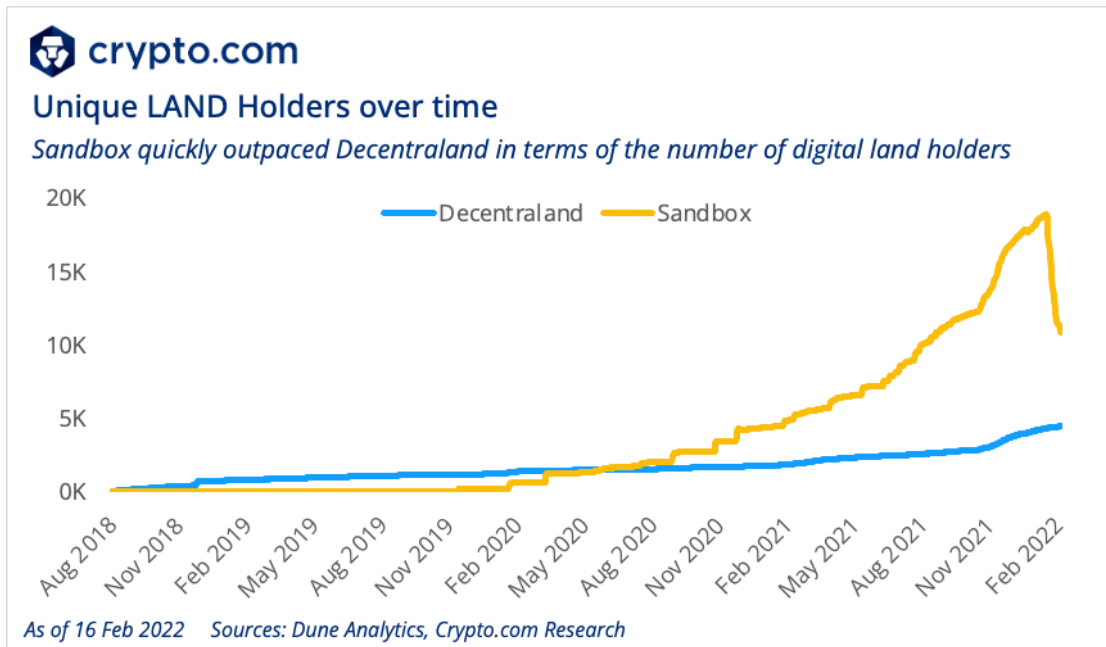
3.2 Web3 Users Enter the Matrix

The intersection of blockchain technology and metaverses can mainly be traced back to the launch of Decentraland in 2017. This was one of the first projects to receive widespread attention in this space, and was part of the explosion of new crypto projects during that year's boom. It introduced the novel concept of digital land tied to a token, based in a 3D interactive environment.

One reason for the early hype surrounding this genre was the number of high-value sales of digital land during 2021. Digital land purchases went through the roof over 2021 as investment funds scrambled to get ahead of what they viewed as a future trend. The investment proposition was essentially that the digital space would become useful for various purposes (such as hosting events or advertising), and that the fixed amount of digital land would consequently rise in value. This eventually came true, with [record digital land sales](#) being set on the platform over the past year.

However, while Decentraland certainly had the first mover advantage in the space, its success quickly attracted rivals. In particular, [The Sandbox](#) has seen enormous

success, not only [topping the staggering digital land sales](#) seen on Decentraland, but also rapidly outpacing its user growth in terms of unique holders of land.



The overall userbase of the metaverse genre, so far as it exists as its own separate entity, is somewhat difficult to estimate, and will likely change in the near future. However, we can gain some insight by looking at individual titles, in particular those focusing on digital land purchases. In December 2021, Decentraland cofounder Ari Meilich said that [the platform had 18K daily active users](#), however historical data on this metric is hard to come by. Regarding digital real estate userbases, at the time of writing, [Etherscan shows 4,557 holders of Decentraland LAND](#). The Sandbox, meanwhile, boasts [10,841 unique addresses holding Sandbox LAND](#), although this seems to have approached 20,000 in recent months. Digital land is what ultimately drives the use case for these platforms, so it will be interesting to examine these trends over the coming year to see if consolidation occurs, with institutions buying up LAND for functional purposes, or whether the digital land will remain in the hands of private investors as the market grows.

As mentioned previously, Facebook took the unprecedented step in 2021 of rebranding to demonstrate its pivot to metaverse-based technology. **The company (now known as Meta), has followed through on this to some extent, releasing [Horizon Worlds](#) in December 2021.** This is merely a first step in what will presumably be far investment by the company in metaverse technology (how much of it will relate to blockchain technology remains to be seen), meaning that the overall metaverse userbase is likely to grow in leaps and bounds as Meta provides some form of easy on-ramp for its existing users to create metaverse avatars.

The Verge recently reported that Horizon Worlds, the aforementioned metaverse title released by Meta, [had increased its userbase tenfold in three months](#), reaching 300K users. While statistics for Horizon Worlds are currently thin on the ground due to how recently it was released, a tenfold increase in users over such a short period of time is a very positive signal for the space. Whether or not metaverse titles will sustain high growth rates (and consistent usage) over time remains to be seen.

4. Trading Card Games

4.1 Tokenised Collectability

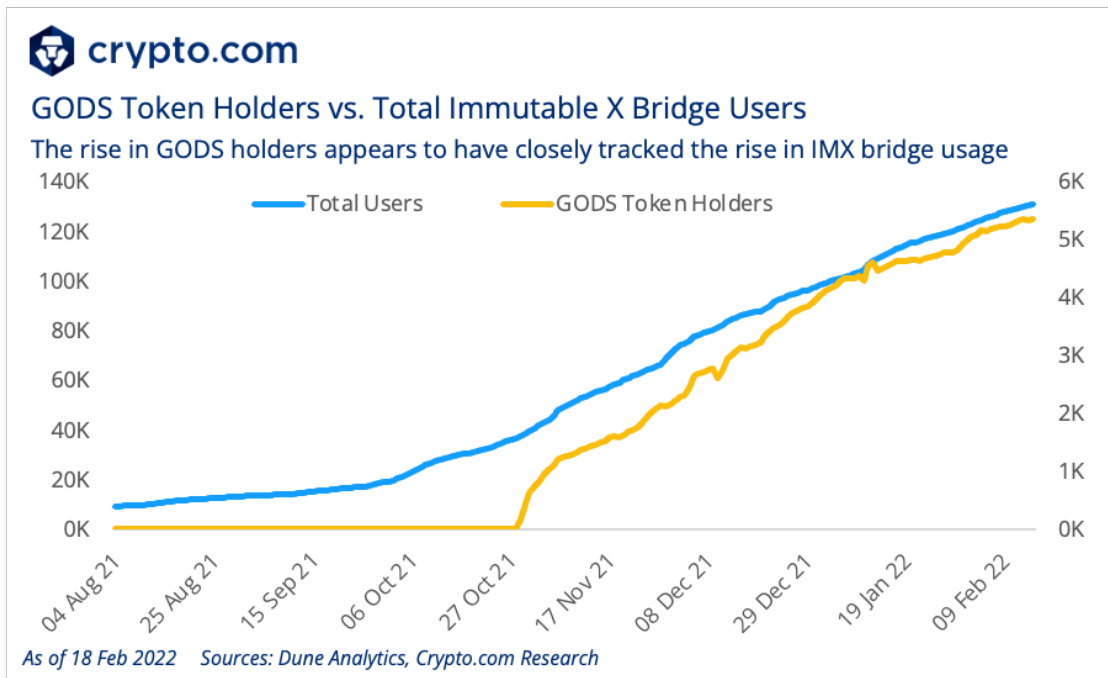
NFTs are a natural fit for collectable items, so it should be no surprise that a number of trading card games have sprung up, using NFTs as a mechanic to allow in-game items to be traded on open markets, giving them a real market value, which can benefit players, in addition to making the game more attractive for newcomers.

Trading card games have less of a natural parallel in the traditional gaming industry than other genres of the blockchain gaming industry. Comparisons have been made to [Magic: The Gathering](#), an influential series which employs a fantasy aesthetic and battle mechanic for its cards, which many blockchain trading card games seek to emulate. Coincidentally, trading Magic cards was the original purpose of the [MtGox](#) exchange, which was so influential in the early history of Bitcoin.

A good example of the kind of games being produced in this genre is [Skyweaver](#), made by Horizon Blockchain Games. [Gods Unchained](#) is another popular title, and is notable for its use of the [Immutable X](#) Layer 2 solution, which aims at scaling NFTs specifically. [As we mentioned in a previous article](#), gaming is currently driving innovation in the scaling space, as developers attempt to sidestep the high fees and network congestion associated with Ethereum, the attempt to use a Layer 2 based entirely around NFTs is an interesting development that may become something of a pattern in future, with game developers opting for custom-built scaling solutions rather than piggybacking on existing projects over which they have no control.

4.2 Blockchain's Card Collectors

In a blog post wrapping up their 2021 progress, the Gods Unchained team reported that [there are now 13 million Gods Unchained NFTs with over 65,000 unique asset holders](#). On-chain activity after the GODs token ICO in October 2021 also shows a steady increase in token holders, which, combined with the overall bullish market sentiment of late 2021, helped to grow the project's userbase quickly over a short period of time.



As mentioned above, Gods Unchained runs on Immutable X, a Layer 2 solution designed for NFTs, meaning it allows users to pay minimal fees trading collectibles (which has undoubtedly helped its user growth). When examining the total number of users interacting with the Immutable X Layer 2 bridge in the chart above, we can see that the uptick in GODS token holders roughly follows the increase in bridge users. Whether this represents the game drawing people to Immutable X, or the promise of low fees from the Layer 2 solution drawing people to the game is a matter of debate, but it is likely to be a combination of both.

5. Sports Games

5.1 Sport Meets the Blockchain

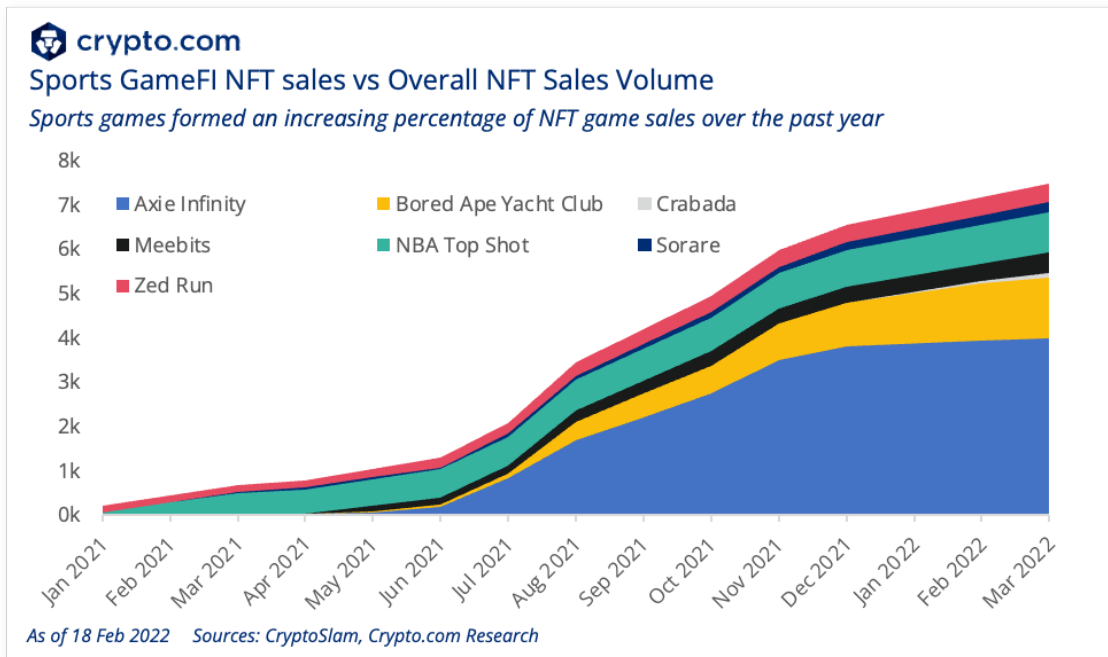
Sports games have been an unusual entry into the blockchain gaming space, primarily riding on the back of the NFT boom. While sport may not necessarily be an obvious fit for blockchain technology, NFTs have provided a means of evolving long-standing sport side-markets such as fantasy football.

Sorare is probably the most prominent example of an NFT-based fantasy sports project. Likened by some to a simplified [Football Manager](#), players build their team based on their players' attributes and rarity, participating in cups and competitions on a regular basis. These players are minted as collectable NFTs, which can be traded with other users. Like many gaming projects, Sorare was initially built on Ethereum, but later opted to move to a Layer 2 solution to avoid high fees and network congestion, in this case moving to [Starknet](#).

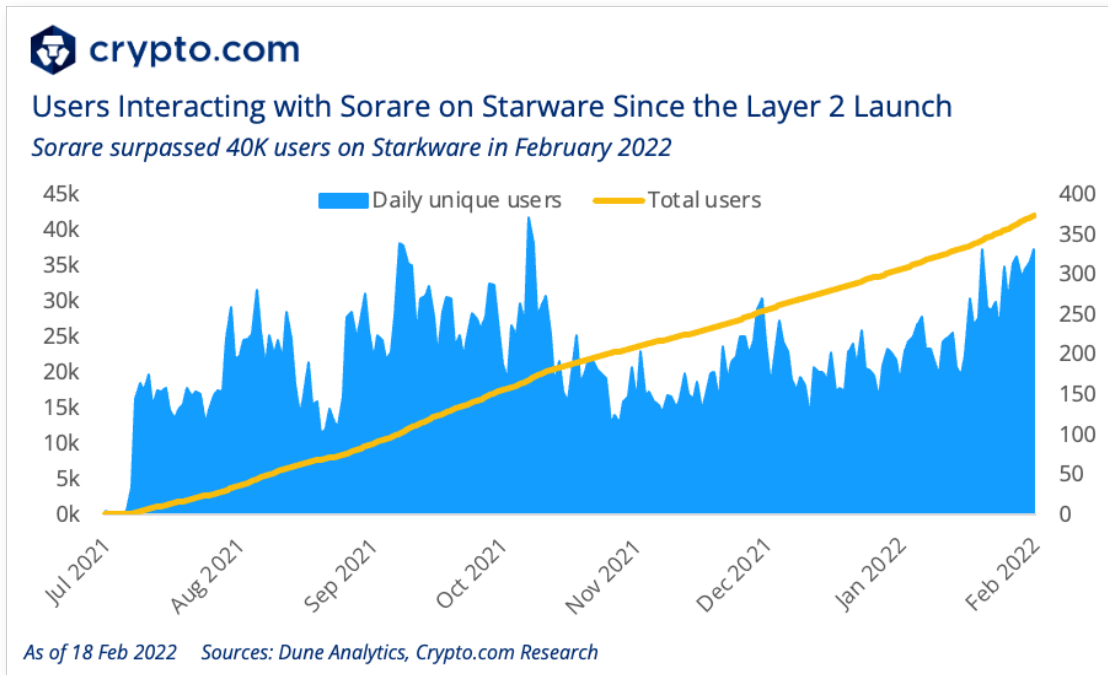
While fantasy team sports represent an obvious use case for NFTs, other kinds of projects have proven suitable for integration with blockchain technology. **One of the more popular titles in the blockchain sports gaming space is Zed Run, a fantasy horse racing game where users can rear, breed and race horses to win prizes.** Because the horses are themselves NFTs, an open market exists for trading them. The breeding component of the game allows users to mint additional horse NFTs, in addition to earning fees for lending their horses for breeding, adding a play-to-earn mechanic to the game. In true horse racing fashion, [the races are also streamed live on Twitch](#).

5.2 Sport Blockchain Games' Userbase

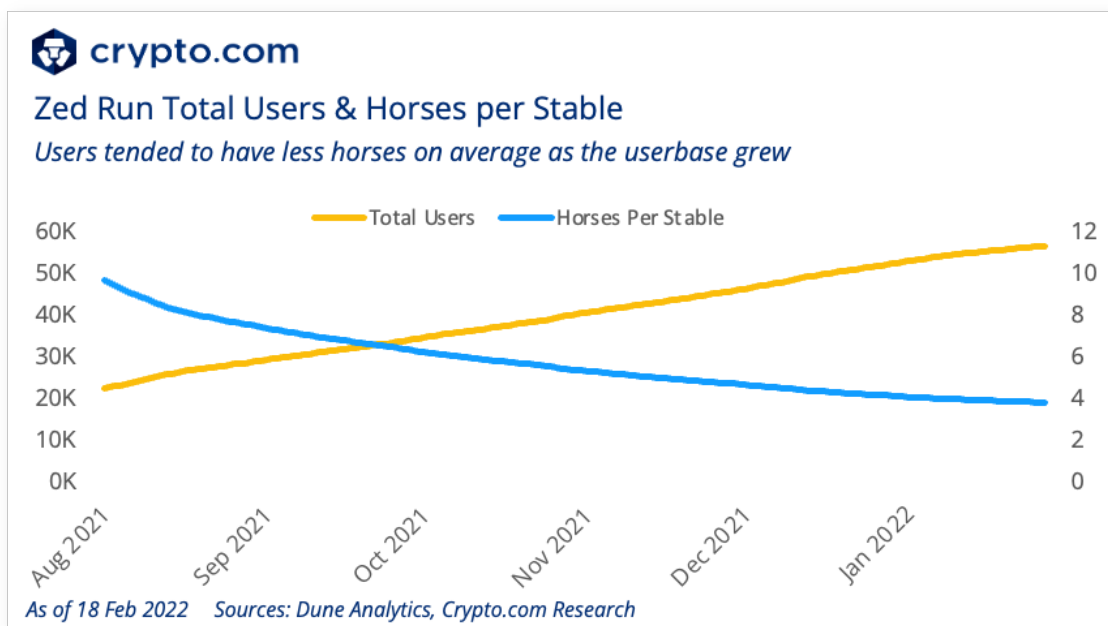
While Zed Run and Sorare are less popular than more established titles like Axie Infinity, they are some of the longest-standing games on the market, with Sorare initially coming out in 2019, long before NFT gaming took off as a concept. Riding the wave of overall market sentiment, the monthly sales volume for Zed Run and Sorare over the past year has broadly matched the trend seen by other projects, both in gaming and the normal NFT world.



As we did previously with Gods Unchained, in the chart below we examined the number of unique wallets interacting with Sorare on Starkware each day in order to get a sense of how many users have been playing the game [since the project moved to Starkware last July](#). We can see that daily user numbers (looking at unique users interacting with Sorare on Starkware) have some highs and lows, but overall seems to have retained its momentum reasonably well despite an increasing market slowdown at the beginning of 2022.



On the Zed Run side, we can see that the overall user count has steadily increased, while the number of horses per stable has decreased. As the sales of the NFTs horses appear to have remained strong, we can infer that the number of horses distributed across the users decreased as more users onboarded as new users bought less horses or older users traded them to newcomers.



One factor driving the growth of Zed Run in particular is that it appears to have become a means for gaming guilds to diversify their holdings. Previously, guilds focusing on play-to-earn games tended to focus on games like Axie Infinity. Axie provided a convenient way for the business model of [Yield Guild Games](#) (YGG) to function, for example, in which the guild purchases NFTs that recruited ‘Scholars’ use to earn crypto, with the rewards being divided between the players, community managers, and the guild. Zed Run is also amenable to this model, [leading Yield Guild to invest in NFT racehorses in mid-2021](#). The play-to-earn guild model seems to have caught on over the past year, with a range of different guilds now providing access to a host of different games, so it will be interesting to see if many other guilds follow YGG into the digital horse racing sector.

6. Conclusion

The rise of game developers experimenting with blockchain technology in their creations has been an inevitability for some time, and 2021 was the year that this finally came to pass in earnest. The explosion not only in the number of games on the market, but in the number of players investing their time and money in them, suggests that this sector is beginning to come together in earnest.

While much work remains to be done to mature blockchain gaming as its own distinct sector of the gaming market, the growth in its userbase is a positive trend for the near future. Investors aiming to keep an eye on upcoming trends in the crypto market would do well to bear the gaming sector of the market in mind when placing their bets for the next few years.

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