Audius And The Streaming Dichotomy

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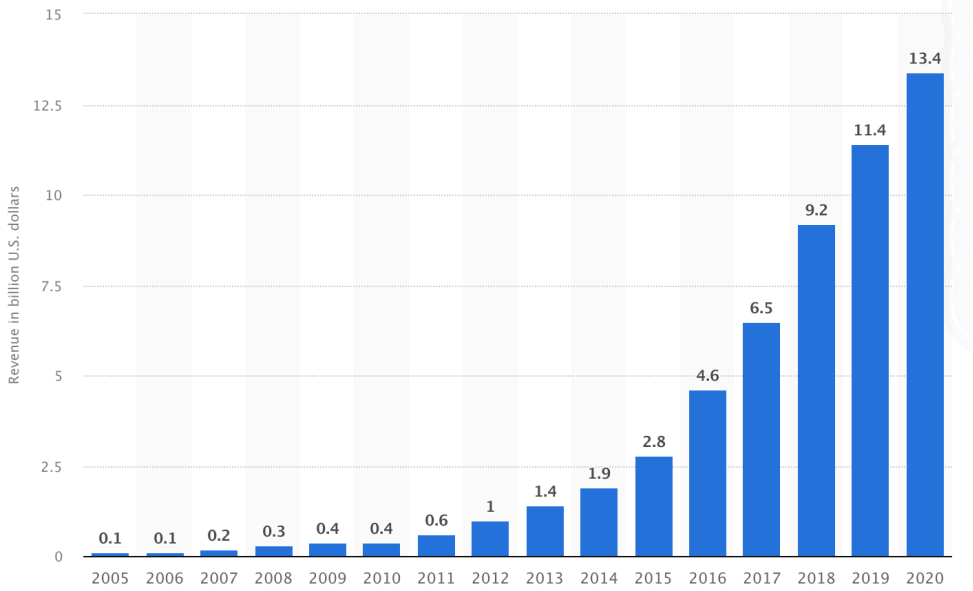
The consumption of music has been steadily migrating to digital mediums over the past decade or so, a movement accelerated by COVID-19. To whit, in 2020, Spotify's monthly active users grew 27% from the previous year.

The Streaming Dichotomy: Music Booming, Musicians Exploited

Streaming is now, by far, the most prevalent medium of consuming music. A concoction of increased smartphone usage, greater availability of streaming services, and the reducing cost of data have all helped drive this migration to digital distribution and consumption. This is reflected in the growing revenues of music streaming and is projected to increase in the future.

Global music streaming revenue 2005-2020



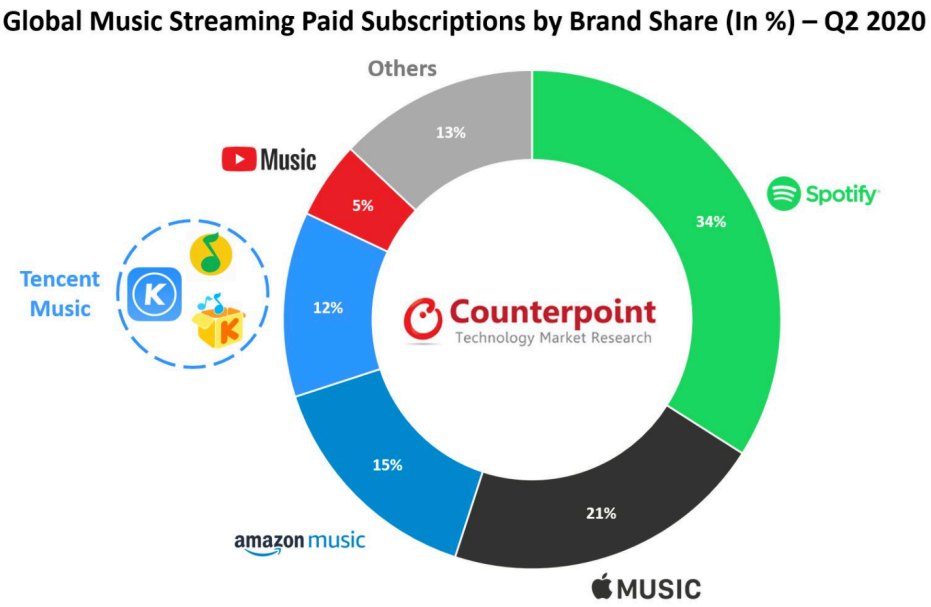
Source: Statista

Despite the abundance of revenues generated, music streaming platforms are notorious for under paying artists and creators. Large distribution platforms understand that the reach they provide artists renders other options for distribution impractical. This behavior has led artists to speak up against these platforms, but ultimately even the most popular artists, like Taylor Swift, have been relatively unsuccessful in their fight.

Music and streaming royalties are at the crux of the issue. The way royalties are calculated and distributed is opaque, and the numerous middlemen and distributors reduce the share of revenues given to creators.

Despite these issues, the industry is booming - as seen above - and is being monopolized by a few entities.

Market share of music streaming platforms



Source: CounterPoint

Audius: Bringing Down The Streaming Platforms

Audius, a decentralized application built on top of Ethereum aims to disrupt the hegemony of streaming platforms. The big players in this sphere act as distributors, where creators use the platform they provide to reach fans and consumers. Audius is a protocol that bypasses these middlemen: allowing creators and consumers to interact directly.

The protocol was founded to address some of the issues faced in this industry, namely:

1. Creators not being compensated fairly for streams
2. Opacity in the calculations of royalty payments
3. Confusion around the rights of ownership
4. Multiple layers of middlemen all taking a cut and delaying payouts to artists

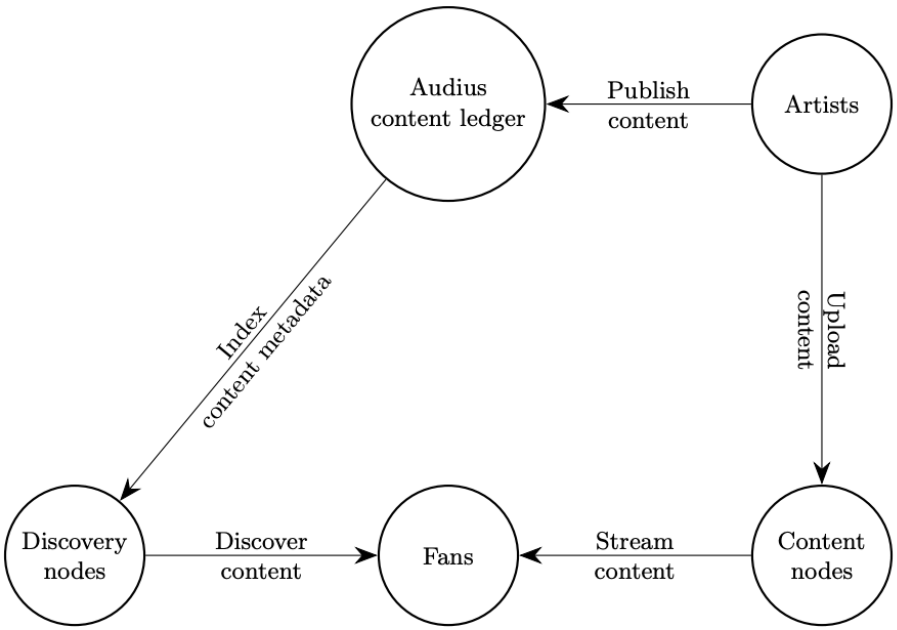
Audius differs from existing streaming platforms because the musicians and their fans actually own and control the Audius platform, giving these individuals greater say over how revenues are shared and distributed.

Listen Up: Understanding Audius

There are five main stakeholders in the Audius network.

1. Fans – consume content
2. Artists – produce content
3. Content nodes – host content and permission access to it
4. Discovery nodes – responsible for indexing the ledger and allowing users to query it
5. Content ledger – the main ledger which contains the node registry and other important information

The first two stakeholders (Fans and Artists) are fairly self-explanatory, while the last three stakeholders revolve around the Audius platform.

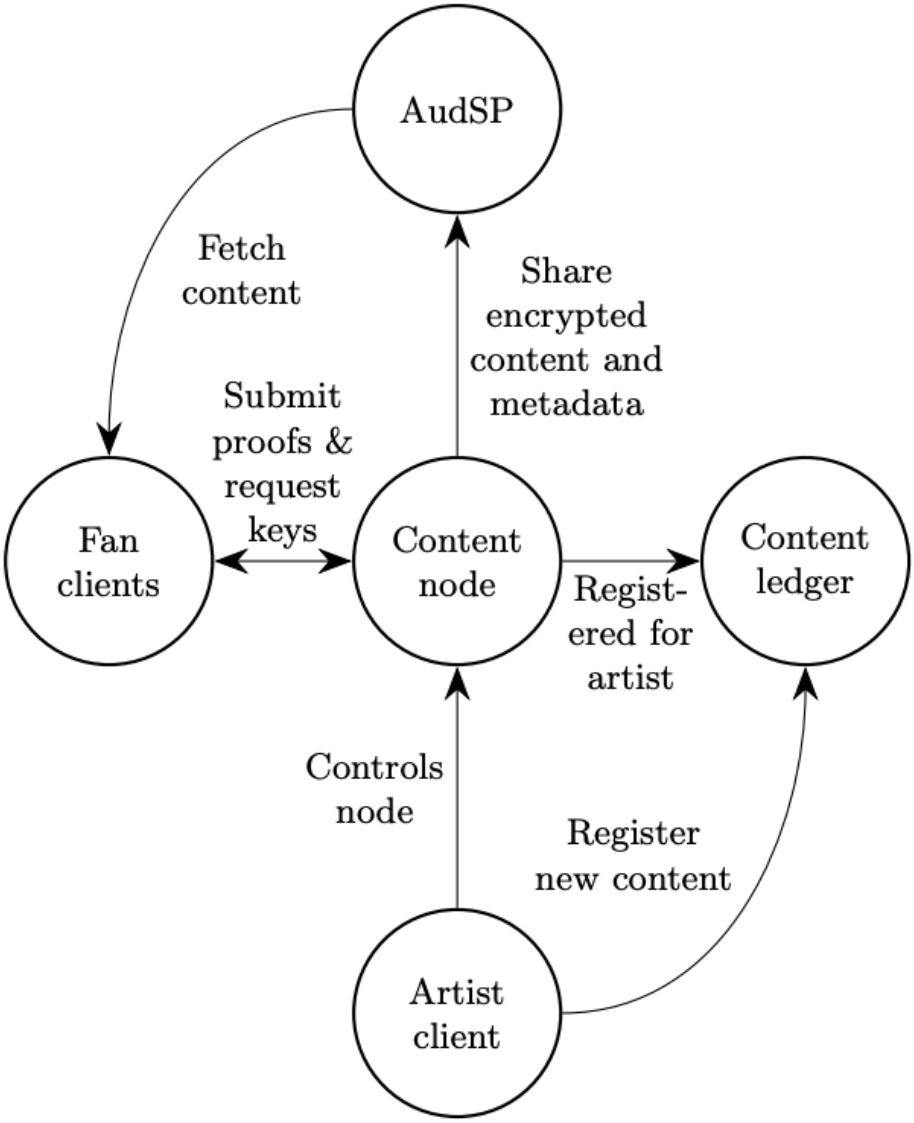


Source: whitepaper

Content Nodes

Content nodes host the content that artists upload to AudSP(Audius Storage Protocol), a decentralized storage solution built on IPFS. Users are incentivized with a portion of $AUDIO inflation rewards to be content nodes and provide storage.

How content nodes interact with other stakeholders:



Source: whitepaper

When an artist adds a piece of music, it is broken into segments, encrypted locally, and then uploaded to AudSP. When a user begins to stream a song, they request access to the different segments from the appropriate content node(s).

When this request is sent from a user's public key, the appropriate content node uses this public key and the private key used to encrypt the segment in the first place to derive a brand new, unique re-encryption key that it sends to the user which they then use to decrypt the segment (and listen to the music).

Since this new key is created using the user's public key, it is specific to them and can thus be shared insecurely and publicly without compromising privacy or security. Unless the user's

public key or the private key used for the encryption change, then the same re-encryption keys are valid and can be used again to decrypt the same segments of a given piece of content.

If an artist were to run a content node and host their own content, they would have the ability to attach further conditions for fans to unlock and consume their music. This could be a payment per stream, or proof of past activity (been a follower for a set period of time, have reposted a certain number of tracks, etc.).

Setting up a node and attaching these permissions requires a prohibitively advanced technical know-how and investment to do so, thus it is not yet a feature artists can easily use. Furthermore, it is not yet integrated into the UI.

As it stands currently, streaming music is free on Audius, and artists/other stakeholders earn tokens by having a trending song or a popular curated playlist - these reward mechanisms are explored in the token economics section of this report.

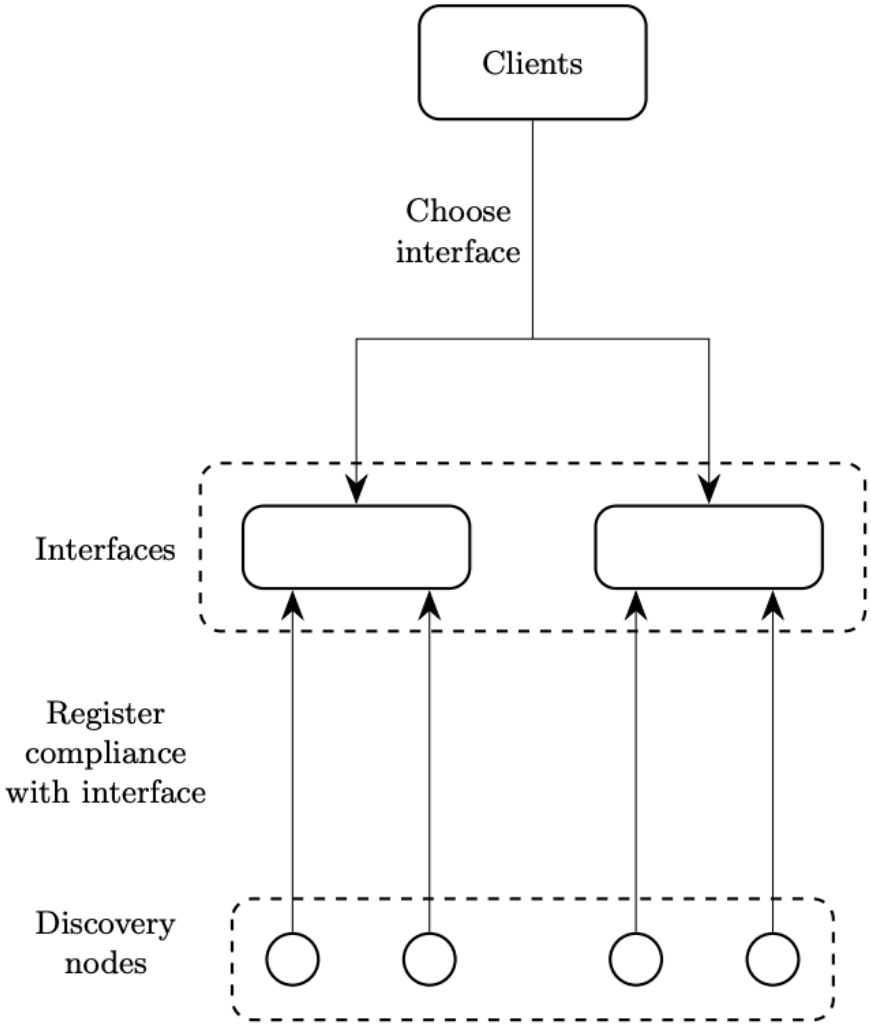
In the near future, Audius community governance plans to give artists full control over how their content is monetized and encourage them to take advantage of the permissionless nature of the protocol. This could include the ability for artists to issue their own token, which they could use to further permission how their music is accessed. I.e. a fan may only stream if they hold the artist's token.

Discovery Nodes

As with content nodes, discovery nodes earn revenue by providing a service in exchange for $AUDIO token issuance and fees. Unlike content nodes, however, discovery nodes serve the network by indexing the content ledger which allows users of the protocol to query the ledger and extract the information they seek. This can be a content feed, a song, playlist, artist metadata, etc. The indexed data can be any and all of the information stored on the content ledger - discussed below.

Subsequently, the open Audius API allows stakeholders to use all this data indexed by the discovery nodes. This enables the creation of interfaces, such as the protocol dashboard, which can ingest and display information. All kinds of applications may be built using the API, some of which are showcased on the API page.

Discovery API interface usage:



Source: whitepaper

The Content Ledger

The main Audius ledger contains all information pertinent to the operation of the protocol and platform. Audius is not reliant on a single blockchain and can contain information of different parts of the protocol that operate on different Layer-1 and Layer-2 solutions.

The content ledger includes:

- A registry of all valid nodes
- Social graph of all users interacting with the protocol

- Implementations of governance systems
- Tracking of content (content itself is stored on AudSP)
- Revenue splits
- Content ownership structure
- Metadata

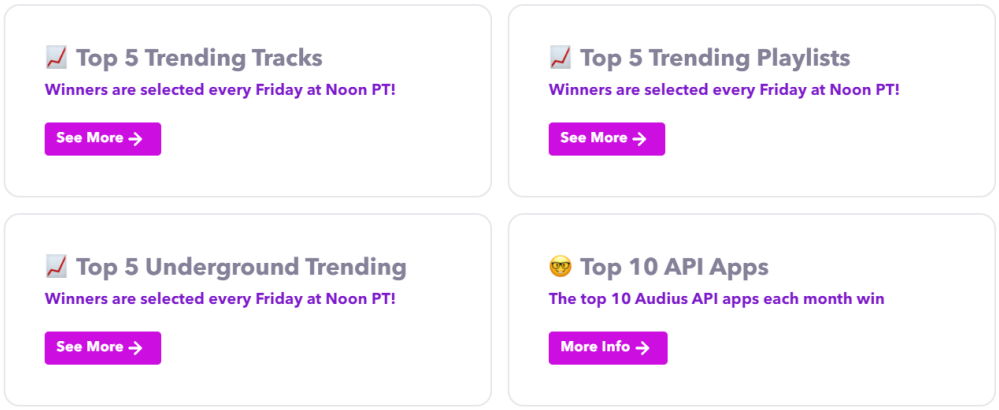
The content ledger essentially serves as a universal source of truth for the Audius protocol. Its transparency and decentralization has two key implications.

The first is that it is censorship-resistant and cannot be taken down. The second: multiple clients of the protocol can be run as stakeholders are free to use the contents of the ledger for their own ends.

$Audio Token Economics

The native $AUDIO token has three core functions. First, it is used as the governance token of the Audius protocol and is required to vote on proposals or community decisions. The second function is to reward fans, artists, and developers for adding value to the platform: curating playlists, developing an app using the API, or publishing a popular track. Lastly, $AUDIO is distributed to nodes as a compensation and incentive to upkeep the network. These payments to nodes and other stakeholders come directly from new supply issuance, which maintains an inflation rate of 7% each year.

Stakeholder rewards



Source: Audio Blog

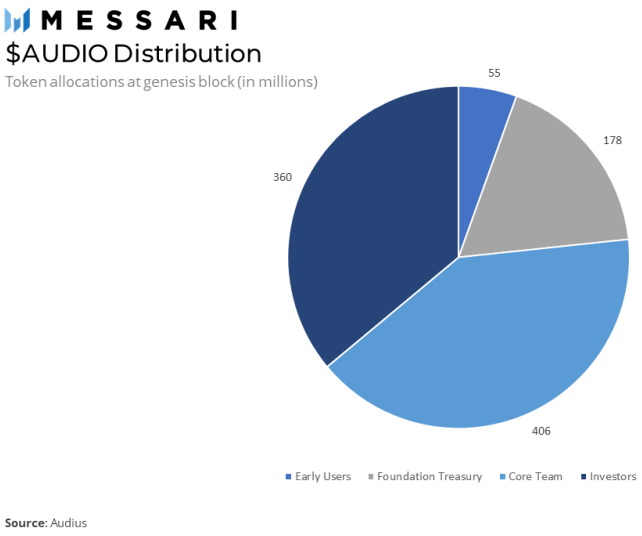
The owners of weekly top trending tracks and playlists are rewarded with 100 $AUDIO, while developers of API apps driving the most traffic to the protocol receive 500 $AUDIO.

On-chain metrics (e.g. app users, plays, etc.) are used to determine winners and funnel rewards to participants that proactively add value to the protocol; incentivizing further contribution and interaction.

In order to operate a node, a minimum of 200,000 tokens must be staked. There is also a maximum amount that can be staked - 7,000,000 for discovery nodes and 10,000,000 for content nodes - to avoid centralization. This stake also acts as collateral and is liable to be slashed in the event of adversarial behavior. Observers of misbehavior can open a governance proposal to slash the accused node, where if successful, the slashed stake is burned.

The greater the amount staked, the higher the probability of accruing rewards due to the greater chance of being chosen to provide service by users - amount staked and rewards increase together linearly. In addition, token holders may delegate tokens to stakers in exchange for a proportional share of the rewards. When tokens are staked (via a node or delegation), there is a seven day unbonding period before stakers receive their staked funds. This does not prevent participation in governance as all staked tokens are assigned voting weight, even during the unbonding period.

There was a pre-mine of one billion tokens at the genesis block, which was allocated as follows:



Source: Audius Medium

- The core team comprises founders, employees, and strategic advisers who have a three-year unlock schedule with quarterly unlocks
- Similarly, investors have quarterly unlocks but over a two year period
- Early users were fans and artists rewarded with an airdrop
- Tokens allocated to the foundation treasury to be distributed according to community governance

An ongoing issuance policy is in place to incentivize the provision of service as well as to prevent concentrating governance power in the hands of early users, investors, or node operators. As mentioned above, this issuance occurs at an annual rate of 7% and is distributed among network nodes.

As of 2nd July 2021:

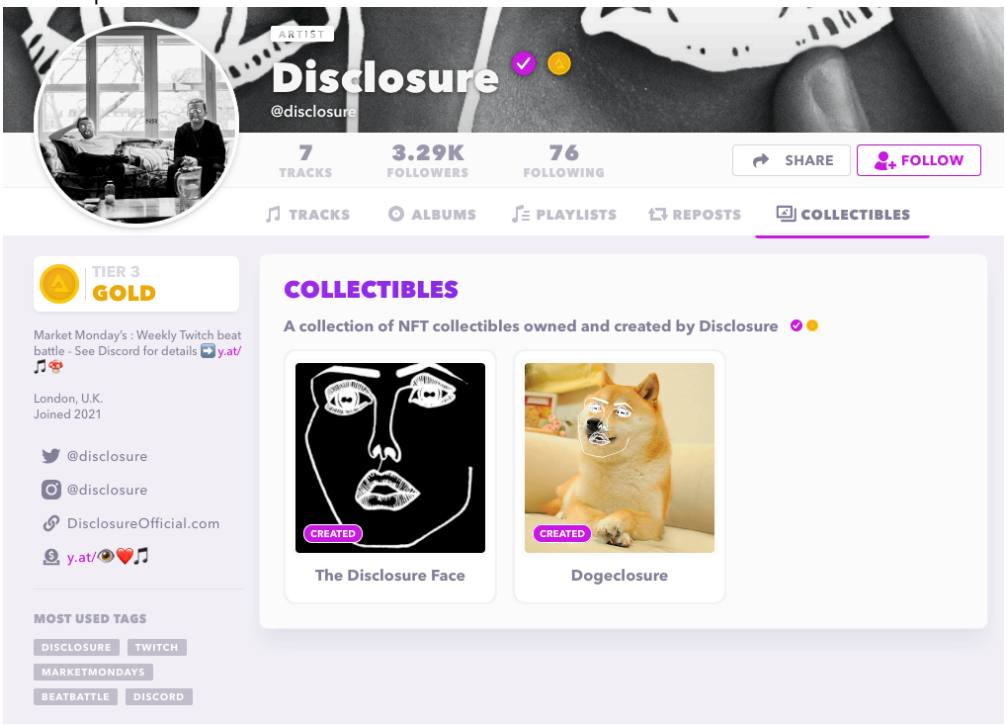
- Total Supply: 1,035,891,210
- Circulating supply: 502,093,061
- Of which are currently staked: 269,710,506

Can Audius Become a Household Name?

The principle of network effects – which explains how the value of a network increases disproportionately with each additional user – applies to many networks, including music streaming platforms. This puts Audius far behind centralized competitors such as Apple Music and Spotify, both of which have accrued large numbers of artists and fans thanks to their strong network effects.

Audius also faces competition amongst other decentralized platforms such as Emanate, an EOS based protocol. Furthermore, many artists have recently opted to release and distribute singles and albums as NFTs. Notable examples include Kings of Leon and Tory Lanez. It must be noted that NFTs released by music artists have thus far been for exclusive content, as opposed to being used for wide-scale distribution of content. Ultimately, established artists will choose whichever platform that enables them to monetize their work most effectively. It's possible that a combination of NFTs and a decentralized stream will become the winning model as opposed to one or the other.

NFTs have been introduced to the Audius ecosystem, where fans and artists can showcase their 'collectibles' on their profiles. NFTs stored in different wallets may be displayed in a dedicated profile section which stakeholders can use to show their collection.



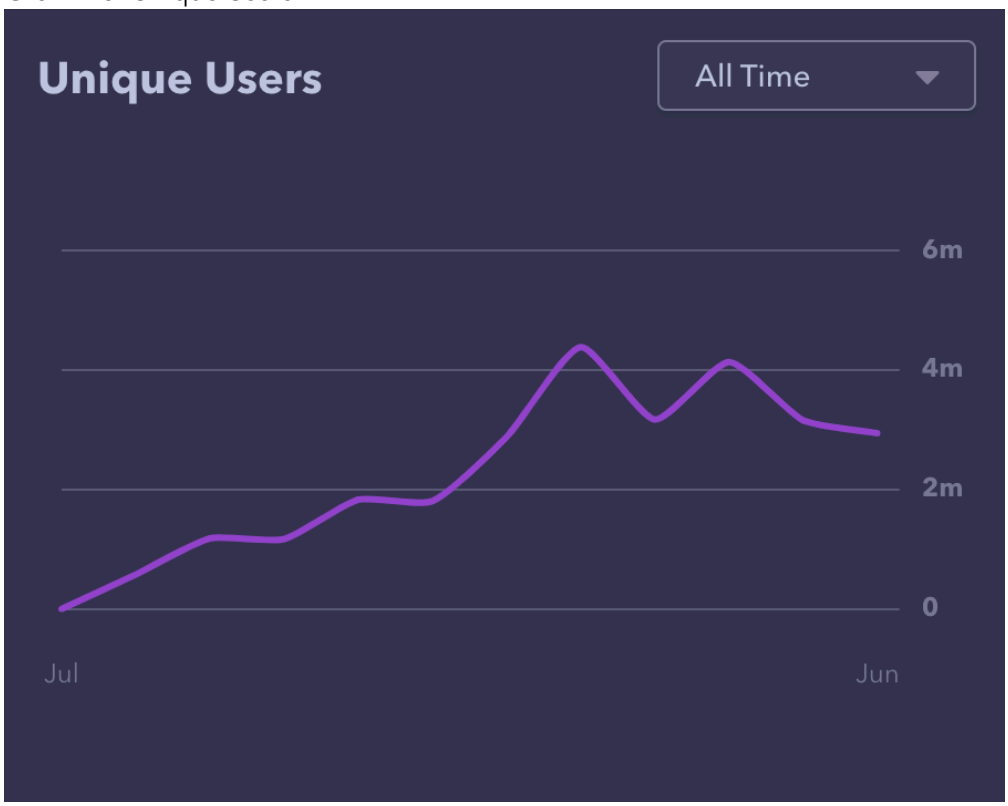
Source: Disclosure artist page

Artists may also issue NFTs to reward loyal fans with various items/experiences, such as tickets, digital art, exclusive albums, etc. This adds a greater level of flexibility and interactivity to the platform.

Competition is fierce and margins are slim in the music streaming industry. While decentralization offers many benefits, it does reduce the efficiency of decision-making. The relative dynamism and reach of competitors means Audius faces an uphill battle to wrest market share away from them. Still, Audius promises a compelling offering for artists and fans, and the more creators that migrate to Audius the more momentum it can build. To date, this momentum

can be observed in the platform's user growth since launch in mid-late 2020.

Growth of Unique Users

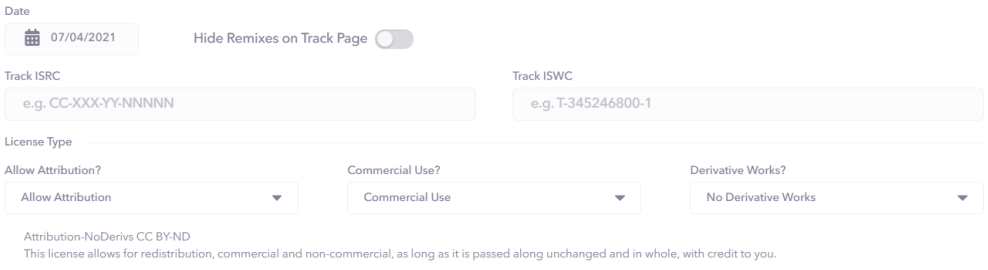


Source: Audius Protocol Dashboard Analytics

At its peak, the protocol had garnered more than 4 million users, making it one of the largest non-financial crypto applications.

Music streaming as an industry has been growing in volume and is poised to grow further, with 17.8% compounding annual growth. Whether Audius can continue to capture and retain value and content remains to be seen, and its success is dependent on how well it is able to acquire artists and consumers.

It must be noted however that Audius' censorship resistance is a double-edged sword. The protocol cannot prevent pirated/copyrighted material from being uploaded and consumed, and cannot forcibly take it down either. When uploading a song, the uploader is promoted to supply the ISRC and ISWC codes, which prove the legitimacy of a song.



Source: Uploading a track (requires Audius account)

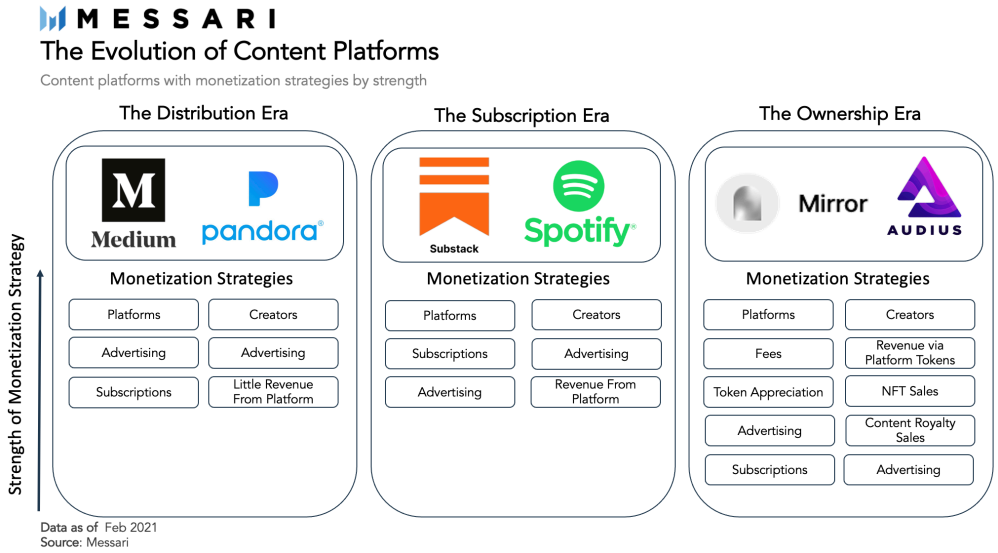
They are not required to be filled in before uploading, and thus anyone can upload any-

thing. This puts Audius at risk of positioning itself as a decentralized SoundCloud, as opposed to a decentralized Spotify/Tidal/Apple Music, which is the market Audius seems aspiring to.

The Audius Advantage: Community Ownership

Despite being backed by venture capital dollars (over $8 million of them), Audius is community-owned and governed, meaning network participants can determine what direction the protocol takes and how it functions. This is vastly different to centralized streaming platforms where the objectives of decision-makers are to maximize shareholder wealth - which are not necessarily aligned with the goals of the network users and are sometimes even in direct conflict.

Enabling both top consumers and content creators of a platform to benefit from the financial upsides is simple, but profound. While entity-owned platforms like Spotify must further extract from their consumers and artists, the Audius platform is aligned with its customers and content creators. Through the use of cryptonetworks, this model creates a positive-sum game, instead of a zero-sum one: a key characteristic of the ownership era.



The creators of content earn the lion's share in this era, not because the owners of the network receive a reduced one, but because the creators *are* the owners. This model empowers the creators of value to set their own fees and conditions for its consumption.

Due to the open-source nature of such platforms, any third party can integrate the API for their own use and purposes. In Audius' case, here are some examples of how the API is being used to create other applications.

The importance of having open APIs is that community members can use this public resource to build apps/dapps and other interfaces that other stakeholders can then use and interact with. This not only captures synergy by enabling innovation and collaboration, but also encourages community participants to proactively interact and build value-added projects.

Open protocols empower people to build things in a permissionless way, acting as a cradle for innovation where those with ideas are not stifled by bureaucratic systems and are free to express said ideas.

If at any point the platform ceases to provide value for the users or producers, the community has control to change the rules of the system. As Messari Senior Analyst Mason Nystrom has written previously, "cryptonetworks are built from the ground up to be controlled

by communities". This means that the algorithms that govern these platforms and how content is shared, recommended, and consumed are no longer a thing of mystery, but open, understandable, and changeable by the community.

The Audius protocol can thus be modified to behave differently, and recommend different content, and evolve based on the wants of the community.

Audius applies this open-source, censorship-resistant, and decentralized ethos to a platform for music streaming, and incentivizes a more egalitarian distribution of value for all stakeholders.