RAIR token-gated infrastructure:
Monetization and Tokenomics

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Terms

- **NFT** - An organized collection of unique serial numbers on a Blockchain
- **Blockchain** - Shared database that stores NFT serial numbers in an immutable manner.
- **Sign request** - Cryptographic signature to prove ownership of Blockchain assets (NFTs)
- **Web cookie** - File called a JSON web token (JWT) provided after a successful sign request that provides access keys.
- **RAIRnode** (Access server) - Provider of access and streaming content when queried with correct credentials.
- **Content** (Data) - Information to lock behind streaming token-gated access.
- **Web2:** Era of the internet defined by centralized institutions gating access to scalable software.
- **Web3:** Era of the internet defined by decentralized protocols protecting access to data ownership and transfer.

Abstract

RAIRtech has spent the last three years focusing on creating infrastructure that uses NFTs to unlock digital goods. Our continuous evolving focus has led us to build several proprietary tools like our NFT minting, royalty and metadata engine that we offer to businesses, communities and creators.

While doing this, we realize our patent pending DDRM (distributed digital rights management) can be expanded to provide access to virtually any web service requiring a login.

This is a much larger business than our initial concept, as it makes RAIR a bi-directional conduit between the existing internet and Web3. In our view, NFTs act as a programmable, provable access key capable of gating any content or access. Our RAIRnode token-gating system empowers this utility by:

- **Leveraging strong security** inherent in web3 to access web2 applications and data. In the past, private mutable databases stored access credentials. In Web 1, this was an access code printed on your CD installation software. In web2, FAANG stores these credentials. In web3, NFTs become the credential.

- **Allowing web3 access credentials to unlock web2.** RAIRnode using OAuth can affiliate email addresses and social handles to 0x wallet addresses. This allows NFTs to unlock any OAuth enabled service which opens nearly limitless possibilities.

- **Adding functionality to web3.** Using RAIR infrastructure, you can add encrypted streams to any web3 asset. This allows for NFTs to have scalable utility for the first time.

The nascent nature of web3 creates a tremendous opportunity for a framework to connect this new ecosystem to the existing web2 internet. This document outlines how we address this functionality while creating a monetization strategy involving both FIAT payments, and our RAIR utility token.

RAIR system

RAIR acts as a distributed intermediary between content (data) providers and content consumers.

- When a user requests access to content they sign with their crypto wallet. This proves ownership of any underlying assets associated with the wallet address.

- RAIRnode infrastructure checks on the designated Blockchain for a matching access credential, then provides a list of accessible content.

- When there is a match, and the user holds the correct asset(s) in their web wallet, access is provided via encrypted stream.

RAIR provides flexible rules-based authentication for any combination of fungible or non-fungible tokens to gate access. *Example: User signature must have greater than 10000 MATIC tokens + 3 Cool Cat NFTs to unlock access to content.*

In practice, more simplistic gating requires a single matching NFT for access. (Or no matching credentials for data collection use cases)

API Gating

RAIR monetizes data flow for ingress, egress, access, persistent storage, and on-chain usage.

All monetization occurs at the client level (businesses paying to use service). Service appears free at the consumer level. Clients can continue to access API as long as services are paid for in RAIR tokens.

Ingress: Uploading content. Per gigabyte of content uploader wishes to token-gate

Egress: Streaming content. Per gigabyte of bandwidth streamed to each end user.

Access: Each signature request is tracked via the RAIR backend in an off-chain manner.

Persistent storage:

- **Centralized** (DMCA compliant) Per gigabyte per month. Push to bucket storage

- **Decentralized** (Arweave/IPFS) Per gigabyte per month. Pin to provide

on-chain transactions:

- **Minting**: Making new NFT collections

- **Metadata**: Formatting, pinning, and placing metadata on-chain

- **Royalties**: Sets royalty rates on sale and resale to wallet addresses

API Revenue

RAIR makes revenue at the infrastructure level via API. Monetization requires conversion to RAIR tokens. This will be examined in detail in the tokenomics section

Revenue involves:

- **Monthly minimum**: Setup required to onboard a user into RAIR ecosystem

- **Analytics**: Access to usage data

- **Per call**: Running tally of usage data paid monthly to maintain access to API

Tokenomics

RAIR requires the native ERC777 RAIR utility token to operate. This can be thought of as DRM at the chain level. Without RAIR tokens, API operations will be rejected. Also without RAIR tokens, the authenticity of data unlocked cannot be verified as it will be unknown if a genuine RAIRnode performed the decryption.

Initially, all RAIR tokens are held by centrally controlled treasury except those set aside for developers, private seed sales, and directors. Inflation level of non-mined tokens is set at the RAIR corporation board level with a mandate to encourage price stability. E.g. no excessive selling to exceed orderbook liquidity.

Issuance Life Cycle

Client onboards to RAIR platform with a monthly minimum + usage

- Usage is tracked per month and converted to RAIR tokens from fiat paid to RAIR corporation (See conversion chart in "Gas" section)

- At the start of each month, a new usage interval begins. If the client has not paid for service, API access will be revoked. Monthly interval is determined by block time

Fiat-to-RAIR conversion

RAIR Corporation initially receives revenue in fiat via a contractual relationship with the client.

- Matching value in RAIR tokens is converted to pay for monthly API usage.

- RAIR tokens are sent from RAIR treasury wallet (source of mine-able supply) to RAIR API wallet (receiver of all tokens for service)

This system alone cannot issue RAIR tokens into active circulation, as all treasury tokens would come back to RAIR API wallet.

Example: Client spends $20000 US per month. Initial RAIR par value set at $.5. 40000 RAIR required to operate API for month two. 40000 RAIR would make a 100% round trip from treasury to API wallet back to treasury without an incentive distribution model. Aka "mining"

Mining

Mining RAIR allows an exponentially decreasing reward function to slowly release RAIR to client wallets. Mining in this context does not require proof-of-work. Instead, it is a reward mechanism based on system usage.

- Only KYC-compliant clients are able to receive RAIR token mining rewards.

- Mining pool consists of all RAIR tokens not set aside for other predefined uses (100m RAIR tokens)

- RAIR mining borrows a simplified exponential halving cycle from Bitcoin. Mining rewards accrue continuously but only paid out when client claims stake on-chain.

MINING	Tranche Start	End	Mining Rate
Tranche 1	0	25,000,000	10%
Tranche 2	25,000,000	50,000,000	5%
Tranche 3	50,000,000	75,000,000	2.50%
Tranche 4	75,000,000	90,000,000	1.25%
Tranche 5	90,000,000	100,000,000	0.625%

Once all RAIR tokens are mined, supply is permanently fixed at a maximum of 222m.

Gas

After all tokens are mined, RAIR tokens must be sourced from the open market. This creates a marketplace between RAIR token holders and clients wishing to perform work on the network.

- The price paid for services (ingress, egress, auth, minting et al) is determined by the demand for services. If many clients wish to decrypt content or make new smart contracts etc, RAIR tokens must be sourced to meet demand.

- Without adjusting RAIR tokens required to perform work, this system will quickly break down. Fiat price is adjusted by corporation per vote of board of directors. *At original $.50 USD par value, each unlock costs .05 cents or .1 RAIR. At a par value of 5 dollars each, unlocks would cost 50 cents each which becomes uneconomic. Thus the price to perform work in RAIR adjusts dynamically with par value.*

See gas chart of services below:

SERVICES		Init RAIR $	$0.50	Example RAIR $	$5
Auth			Init RAIR	Fiat Price (corporate set)	Adjusted RAIR
Web3 Auth service	per call	0.1	$0.05	0.01	
OAuth2.0 service	per call	0.15	$0.08	0.015	
Analytics	monthly	4000	$2,000.00	400	
Auth Service	monthly	10000	$5,000.00	1000	
Data - Video		Init RAIR	Fiat Price	Adjusted RAIR	
Encoding service	per gb	1	$0.50	0.1	
Bandwidth	per gb	0.5	$0.25	0.05	
Video	per embed	2	$1.00	0.2	
Data - General		Init RAIR	Fiat Price	Adjusted RAIR	
Upload	per gb	0.2	$0.10	0.02	
Bandwidth	per gb	0.5	$0.25	0.05	
Data - Use Case		Init RAIR	Fiat Price	Adjusted RAIR	
Ebook	per epub	25	$12.50	2.5	
Data - Storage		Init RAIR	Fiat Price	Adjusted RAIR	
decentralized storage	per gb	0.1	$0.05	0.01	
cloud storage	per gb	0.2	$0.10	0.02	
on-chain		Init RAIR	Fiat Price	Adjusted RAIR	
Minting	per contract	15	$7.50	1.5	
Metadata	per JSON	0.1	$0.05	0.01	
Royalty	per transaction	0.2	$0.10	0.02	
Frontend		Init RAIR	Fiat Price	Adjusted RAIR	
Hosting	monthly	1000	$500.00	100	
Copy Changes	per change	500	$250.00	50	
Deployment	upfront	100000	$50,000.00	10000	

Gas efficiency

Only a single series of on-chain transactions is needed per client per month. No on-chain transactions are required for client customers as sign requests are gas less.

Gas is only paid when: monthly RAIR token balance is updated based on API usage, clients wish to claim stake, or send RAIR tokens on-chain.

Staking

By default all mined RAIR will be staked. Staking is designed to reward holders at all levels.

- Client receives discount +1 month from staking start date. Tokens sold within the month will adjust the discount at the beginning of the next holding period.

- Discounts are calculated in RAIR tokens. E.g. API usage of 20,000 RAIR per month is reduced to 20,000 x (1 - .3) or 14,000 if staker has a minimum RAIR balance of at least 200,000 RAIR.

STAKING	Min Stake	Max Stake	Discount
Tranche 1	100	1000	5%
Tranche 2	1000	10000	10%
Tranche 3	10000	50000	20%
Tranche 4	50000	200000	25%
Tranche 5	200000+		30%

Public RAIR token price

Clients may sell earned RAIR at any time on Uniswap and/or other partner exchanges.

RAIR will acquire all RAIR tokens from the treasury rather than open market until all mine-able tokens are issued. **This makes RAIR corporation market neutral to token price during the distribution phase.** E.g. any amount of client demand can be accounted for via RAIR treasury.

- Once placed on the open market (DEXs or CEXs) by client, any 3rd party buyer or other client may purchase.

- Once a verifiable trading price is established beyond initial par value, a data oracle will be used for calculating the exchange rate of RAIR tokens.

Current holders have an incentive to reduce mining rate to reduce dilution. Mining rate is reduced as par value increases.

Demand pressure on token

Reasons to purchase additional RAIR tokens from the public market include:

- **Network usage drives scarcity**. Once fully mined the supply of RAIR is fixed. This will require RAIR tokens as gas to support any network functions, RAIR tokens are the only way to prove a genuine RAIR auth has occurred.

- **Holding RAIR tokens to pay for future work.** Clients must pay in RAIR tokens per unlock, ingress, egress, etc. To remain cost competitive on the open market, prices must remain affordable to the average client/consumer. E.g. if RAIR token price increases each RAIR token will be capable of performing more work.

- **Slowing mining rate.** A lower RAIR price allows tokens to be mined more quickly - diluting the value of each holder.

- **Staking.** Clients wishing to receive a discount on services must stake RAIR tokens, reducing active supply.

Addendum

Tailwind trends for growth

Direct to consumer distribution: Defecting from FAANG platforms with predatory revenue shares and opaque analytics

Web3 wallet expansion: Particularly in under banked developing markets

Brand desire: for Web3 presence and differentiated user experiences

DRM expansion: Gating new content types. AR/VR experiences

Competitive moats

Patent: specific to querying Blockchain for granular access credential then providing custom JWT.

Specific knowledge: querying Blockchain at scale. Industry best practice cloud infrastructure. Tracking off-chain metrics with on-chain token payment

Web2.5 compatibility: RAIRnode authorization system flexible to login types including forward integrating into OAuth2.0. Interaction with legacy web2 systems via Web3 secure login.

Vertical Integration: minting, metadata, royalty management, & purchase frontends, in addition to DDRM system

Tokenomic Incentives: clients can mine exponentially more RAIR tokens in the beginning of the platform lifecycle. Any competitor wishing to offer a similar service will not have genuine RAIR tokens to perform services. Will not have first-mover advantage.