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OPENVERSE VRC-13 Timing Token Bluepaper

The Rights Internet—A Universal Protocol for Time-Based Digital Rights

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A Universal Protocol for Time-Based Digital Rights

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Abstract

The history of the internet is fundamentally one of continuously mapping the real world into the digital realm. Since the 1990s, the information internet represented by the HTTP protocol has established a globally unified standard for information transmission and access, enabling humanity to achieve free global dissemination of knowledge, data, and information resources for the first time. Subsequently, the value internet exemplified by blockchain technology further transcended traditional financial systems' limitations on value circulation, allowing digital assets to be reliably registered, freely transferred, and settled worldwide without central institutions. While the information internet addressed connectivity issues, the value internet resolved value exchange challenges. However, as the digital economy permeates every aspect of society, people have come to recognize an even broader, more complex domain — entitlements — that long lacked unified standards beyond the realms of information and value.

In the real world, the vast majority of economic activities are fundamentally not centered around asset ownership, but rather revolve around various rights continuously generated throughout an asset's lifecycle. When users lease a car, they obtain usage rights; when travelers check into a hotel, they acquire accommodation rights; when enterprises purchase cloud services, they gain access to computing resources; when consumers receive coupons, they enjoy consumption rights; when smart devices are authorized, they obtain control rights; and artificial intelligence services continually generate new service-related rights. These rights permeate all aspects of societal operations and form the essential foundation of modern service economies, sharing economies, platform economies, and digital economies. However, compared to information and value, these rights have long lacked unified digital representation standards. Their creation, management, circulation, and verification typically rely on isolated centralized systems, making it difficult to achieve open, interconnected network effects.

The Openverse VRC-13 Timing Token is a foundational protocol developed within this context for the Internet of Entitlements. Unlike traditional asset-based protocols such as digital currencies, digital securities, and NFTs, VRC-13 does not aim to represent assets themselves but focuses on defining the various entitlement relationships associated with assets over specific time periods. By introducing the Timing Object, Timing URI (the identification framework for timing objects), and a hierarchical object model, VRC-13 seeks to establish a unified standard for entitlement representation, enabling standardized description, digital management, and on-chain circulation of various rights — including usage rights, access rights, control rights, service rights, and revenue rights—across both the physical and digital worlds.

Openverse posits that if HTTP establishes the Information Internet while blockchain creates the Value Internet, the future development of the internet will inevitably require a new tier capable of connecting rights relationships. What VRC-13 explores goes beyond merely a novel token model—it represents an rights infrastructure designed for future digital civilization. As artificial intelligence, the Internet of Things, digital identities, smart devices, and the digitization of real-world assets continue to advance, rights are poised to become one of the most dynamic, widespread, and liquid forms of resources in the digital economy. The Rights Internet is thus expected to emerge as the next-generation internet paradigm following the Information Internet and the Value Internet.

Keywords: Timing Token , VRC-13， Entitlements

1. Introduction

1.1. From the Information Internet to the Value Internet

1.1.1. The Information Internet Era

A review of the internet's evolution reveals that each breakthrough in foundational protocols has corresponded to a profound transformation in social organization and production methods. In the 1990s, the widespread adoption of the TCP/IP protocol suite and HTTP enabled humanity to establish the world's first global information network. Through this network, people across different countries, regions, and cultural backgrounds could access and exchange information using unified standards, overcoming traditional physical barriers to knowledge dissemination and information acquisition. The rise of internet applications such as search engines, e-commerce platforms, online media, and social networks fundamentally stems from innovations built upon this digital infrastructure. The success of HTTP lies not merely in resolving web browsing challenges, but more importantly in establishing a globally standardized framework for information representation and access — marking the first time information became a freely interconnected and disseminated digital resource.

However, while the information internet has significantly enhanced the efficiency of information flow, it has not addressed the issue of value flow in the digital world. Users can browse product information online but cannot directly conduct credible value exchanges via the internet; enterprises can disseminate business information globally yet still rely on traditional financial systems for cross-border settlements and asset transfers. Consequently, alongside the rapid development of the information internet, the demand for digitalization at the value level continues to grow, ultimately giving rise to the era of the value internet.

1.1.2. The Era of the Value Internet

In 2008, the release of the Bitcoin white paper marked the official dawn of the value internet era. Unlike the information internet, which addressed information transmission challenges, blockchain technology aims to solve value transfer issues. Through a decentralized ledger, cryptographic verification, and consensus mechanisms, Bitcoin pioneered digital value ownership confirmation and transfer without requiring central institutions. Subsequently, next-generation blockchain technologies represented by smart contracts further expanded the expressive capabilities of digital assets, enabling currencies, securities, commodities, and various other assets to exist and circulate in digital form.

The development of the value internet has enabled human society for the first time to establish a globally unified value settlement network. Within this framework, value can circulate freely like information, significantly reducing transaction costs and enhancing resource allocation efficiency. Innovations such as digital currencies, stablecoins, decentralized finance, and the tokenization of real-world assets have emerged continuously, transforming blockchain from a mere technological experiment into a vital infrastructure for the global digital economy.

However, as the blockchain ecosystem continues to expand, it has become increasingly clear that even when value can be quantified digitally, numerous relationships in the real world remain difficult to describe effectively. For instance, a car generates thousands of usage entitlements over its ten-year lifecycle; a hotel consistently produces substantial occupancy entitlements during operation; and an AI system may provide service entitlements to millions of users daily. While

these entitlements are closely tied to value, they do not equate to value itself. The Value Internet excels at representing asset ownership relationships but struggles to capture the complex entitlement dynamics across time dimensions. Consequently, the digital realm still lacks a crucial layer—the entitlement layer.

1.1.3. The Development Direction of the Next Generation Internet

As the information internet and value internet mature, the development direction of the internet has shifted from "digitalization of resources" to "digitalization of relationships." In future society, extensive complex rights relationships will emerge between individuals, between humans and devices, between devices themselves, and between artificial intelligence and the real world—relationships that will form the essential foundation for the digital economy. For instance, autonomous vehicles require granting driving permissions to users; smart door locks need to authorize access for visitors; AI agents must provide service permissions to users; and digital identity systems must continuously manage various access and authorization relationships. Fundamentally, these all constitute rights relationships rather than information or value in the traditional sense.

Therefore, the next-generation internet must not only determine "where information resides" and "who holds the value," but also identify "who owns what rights at what time, and whether these rights can be verified, transferred, and managed." This signifies that internet development will evolve from connecting information and value to establishing connections based on rights. Openverse argues that the future of digital society requires a new foundational protocol to uniformly represent and manage various rights relationships between the physical and digital worlds, and the VRC-13 Timing Token represents a groundbreaking initiative in this context.

1.2. The Birth of the Internet of Rights

1.2.1. Information, Value, and Rights

If we view the development of the internet as a continuous process by which human society maps the real world onto the digital realm, then information, value, and rights can be regarded as the three fundamental elements supporting the operation of digital civilization. In the era of the Information Internet, the focus has been on digitizing knowledge, data, and content for global dissemination via networks; in the era of the Value Internet, attention has shifted to digitizing currency, assets, and various forms of economic value for credible circulation through blockchain technology. However, both information and value are essentially merely components within the broader framework of societal functioning. What truly drives the sustained operation of real society is not merely information or value exchange, but rather a collaborative system built upon diverse rights-based relationships.

In the real world, almost all economic activities revolve around rights and interests. When a consumer purchases an air ticket, they essentially acquire the right to fly on a specific flight at a given time; when a user subscribes to a cloud service, they obtain the right to access computing resources for a defined period; when a company purchases software licenses, it secures the right to use the software throughout the licensing term; when a hotel sells rooms to guests, it essentially

sells the right to occupy and utilize space resources for a specified duration. Even within the most fundamental legal frameworks of human society, concepts such as property rights, usage rights, income rights, inheritance rights, access rights, and operational rights represent various manifestations of the rights system. From this perspective, rights are not mere appendages of value but rather essential vehicles through which value is consumed, utilized, and realized.

It is noteworthy that while equity and value are closely related, they are not identical. Value refers to the economic attributes inherent in an object itself, whereas equity denotes the rights relationships established around that object. For example, a car is a carrier of value, while the privileges derived from driving it for a day, a week, or a month fall under the category of equity; a property possesses market value, and the rights associated with residing in, renting out, operating, or accessing it represent different forms of equity. In reality, numerous economic activities revolve not around asset ownership but around these constantly evolving equity relationships. Therefore, given that the internet has already achieved digitalization of both information and value, establishing a digital infrastructure capable of uniformly expressing equity relationships has become an essential requirement for the next phase of digital economy development.
It is noteworthy that while equity and value are closely related, they are not identical. Value refers to the economic attributes inherent in an object itself, whereas equity denotes the rights relationships established around that object. For example, a car is a carrier of value, while the privileges derived from driving it for a day, a week, or a month fall under the category of equity; a property possesses market value, and the rights associated with residing in, renting out, operating, or accessing it represent different forms of equity. In reality, numerous economic activities revolve not around asset ownership but around these constantly evolving equity relationships. Therefore, given that the internet has already achieved digitalization of both information and value, establishing a digital infrastructure capable of uniformly expressing equity relationships has become an essential requirement for the next phase of digital economy development.

1.2.2. The Missing Rights Layer in the Digital World

Although the internet and blockchain have respectively addressed the issues of information connectivity and value linkage, the expression of rights in the digital world remains highly fragmented. Today, numerous enterprises and platforms manage various forms of rights, such as membership privileges, software licenses, coupons, point systems, access permissions, device control rights, and service entitlements. However, these rights are typically confined within separate systems operated by different entities, with varying approaches to creation, management, verification, and circulation, preventing users from managing their rights as freely as they would access web pages or transfer digital assets.

This fragmentation phenomenon not only increases corporate operating costs but also restricts the circulation capacity of these benefits. Membership privileges obtained by users from airlines cannot be directly recognized by hotel systems; digital service entitlements issued by enterprises cannot be verified within other ecosystems; authorization frameworks established by device manufacturers typically serve only their own products. Due to the absence of unified standards, although these benefits hold clear value in practice, they struggle to form an open and interconnected network structure.

From a broader perspective, the digital world currently comprises two distinct layers: the information layer and the value layer. The HTTP protocol establishes a unified information layer

that enables access to different websites through standardized protocols; blockchain creates a unified value layer that facilitates the circulation of various digital assets within the same network. However, the numerous rights relationships existing between these two layers have long lacked a unified representation mechanism. This means that while the digital economy can record information and value, it still struggles to accurately capture the most prevalent rights relationships in real society.

With the rapid advancement of artificial intelligence, the Internet of Things, the sharing economy, and the digitization of physical assets, this issue will become increasingly prominent. In the future, billions of smart devices, billions of AI agents, and hundreds of billions of digital services will continuously generate various forms of access rights, control permissions, service privileges, and usage rights. If these rights remain dependent on isolated management systems, the entire digital society will face significant collaboration challenges. Therefore, establishing a unified rights framework is not only a technical necessity but also a fundamental requirement for the development of digital civilization.

1.2.3. Introduction to VRC-13

It is against this backdrop that Openverse introduced the VRC-13 Timing Token protocol. Unlike traditional digital currency protocols, digital securities protocols, or NFT protocols, VRC-13 focuses not on the asset itself but on the continuous equity relationships generated throughout its lifecycle. Openverse argues that the vast majority of real-world objects possess two key attributes: value and time. The value attribute determines an object's capacity to create economic value, while the time attribute dictates how that value is released over its lifecycle. As value is gradually released over time, various forms of equity arise accordingly.

For example, the value of a car is not realized in a single lump sum upon completion of production, but is gradually realized over years or even decades of use; the value of a hotel room lies not in the room itself, but in the occupancy benefits generated continuously during its operation; the value of an AI model also does not reside solely in its parameters, but is progressively realized through ongoing service provision to users. Therefore, most economic activities in the real world revolve around "time-based benefits" rather than asset ownership itself.

VRC-13 aims to establish a groundbreaking digital object framework that enables standardized representation of temporal entitlements. Through the Timing Object model, each entitlement can be defined as a recognizable, verifiable, manageable, and tradable digital entity; the Timing URI system provides a unified identification mechanism for all entitlements; and a hierarchical object architecture allows enterprises, organizations, individuals, and future AI agents to build their own entitlement ecosystems. Openverse believes that when entitlements can be accessed like information and circulated like value, a new internet layer will gradually emerge—the Internet of Entitlements.

1.3. The Mission of the Timing Token

1.3.1. Establishing a unified system for expressing rights and interests

One of the key reasons for the success of the Internet lies in standardization. Whether it's TCP/IP, HTTP, or DNS, their core value lies in establishing unified rules that enable previously isolated systems to form a global network. VRC-13 follows this same principle, with its primary mission being to establish a unified system for expressing rights and interests. The types of rights

and interests in the real world are extremely diverse—ranging from vehicle usage rights and room occupancy rights to software access rights, device control rights, and future AI service rights and digital identity permissions. Although they manifest differently, they all fundamentally represent temporal entitlement relationships centered around specific objects.

VRC-13 employs a unified object model to integrate these seemingly distinct rights into a single expressive framework, eliminating the need for enterprises to develop separate management systems for each right and enabling creation, management, and verification through standardized processes. This consistency not only reduces system complexity but also facilitates interoperability across different ecosystems, ultimately establishing a genuine rights network.

1.3.2. Establishing Standards for Digital Objects

In the information internet, web pages are the most fundamental digital entities; in the value internet, assets are the most fundamental digital entities. In the equity internet, however, entities themselves become carriers of rights. The Timing Object proposed by VRC-13 is not merely a token but a standardized digital entity capable of storing identity, time, permissions, and public data.

Through this standard, real-world entities such as cars, houses, devices, goods, and services, as well as digital entities like domain names, identities, and AI agents, can all be mapped to unified objects. Each object possesses an independent identity, lifecycle, and set of rights, creating a digital model that more closely mirrors the operational logic of the real world. Openverse believes that the internet will gradually transition from the "page era" to the "object era," with Timing Objects poised to become a fundamental building block of this new era.

1.3.3. Building Internet Infrastructure for Equity Rights

The ultimate goal of VRC-13 is not merely to introduce a new token standard, but to establish the infrastructure for an equity-based internet. The information internet has transformed the world thanks to unified protocols and standards; similarly, the value internet has grown rapidly because blockchain has created a unified value layer. For the equity-based internet to truly scale in the future, it too requires a unified infrastructure framework.

Openverse aims to bridge various rights relationships between the real and digital worlds through VRC-13, enabling enterprises to build rights ecosystems, allowing users to manage rights assets, empowering AI agents with independent identities, and facilitating permission-based collaboration among smart devices. As more entities integrate into this framework, a global rights network will gradually take shape. Within this network, rights will be as accessible as information and as tradable as value, propelling the internet from connecting information and value toward a new phase of connecting rights.

2. Timing Theory

2.1. Everything Has Value

2.1.1. Value is an essential attribute of the existence of things

Throughout the long history of human societal development, value has consistently served as a fundamental concept for understanding the world and organizing economic activities. Whether in the agricultural, industrial, or digital age, people have sought to measure and exchange value through various means, establishing diverse production and social relationships based on it. However, upon closer examination, we realize that value is not confined to currency, commodities, or financial assets; rather, it permeates a wide range of entities across nature, human society, and the digital realm. In other words, value is not a concept created by humans but an inherent attribute of things themselves.

A piece of land can produce food and thus possesses production value; a river provides irrigation and transportation capabilities and therefore has resource value; a house offers living space and thus has residential value; a car enables mobility and therefore has transportation value. Even in the digital world, a domain name provides identification capability, software delivers service functionality, and an artificial intelligence model enables reasoning capabilities — all representing distinct forms of value. Although the sources of value vary across different entities, they all share a common characteristic: the ability to create some form of utility for individuals, organizations, or society.

Traditional economics typically defines value as the outcome of exchanges involving scarce resources in markets, whereas VRC-13 adopts a broader perspective on value. Openverse posits that value manifests not only through exchange processes but also in the inherent potential capabilities of objects themselves. Many objects retain value even when not yet entering the market: for instance, a car parked in a garage still possesses transportation value despite being unrented; an unsold property retains its residential value even without transaction; and an AI model not yet deployed generates no revenue yet maintains computational potential. Thus, value should be understood as the enduring capabilities inherent throughout an object's existence, rather than merely reflected in market pricing.

Since value is inherently embedded across diverse entities, the future development of the digital economy should focus not only on value identification and circulation, but more importantly on how value is realized throughout its lifecycle. The Rights Internet Theory proposed in VRC-13 is grounded in this understanding: any entity capable of continuously generating value can consistently produce various forms of rights during its lifecycle, which will ultimately become a vital component of the future digital economy.

2.1.2. Manual Value and Digital Value

Throughout the evolution of human civilization, a vast majority of value has not originated from nature but rather stems from human creative endeavors. From the earliest tool-making to modern industrial systems, and from traditional commerce to the digital economy, humanity has continuously created new forms of value through knowledge, technology, and organizational capabilities. These human-made entities not only possess distinct value but often exhibit life cycles and ownership structures that are more complex than those of natural resources.

For example, a car undergoes a lengthy process of collaboration across the industrial chain from design and production to sale; its value is reflected not only in manufacturing costs but also throughout its usage over the next ten or even twenty years. The same applies to an airplane, a ship, a commercial building, an industrial facility, or even a common commodity. Once created, these entities continue to serve society for extended periods and progressively realize their inherent value. Consequently, modern economic activities are increasingly centered around such tangible value carriers.

With the advancement of internet and digital technologies, digital value has emerged as a new and significant form of value. Unlike physical entities, digital objects may not possess a tangible physical form yet can still generate substantial value. For instance, domain names provide online identity recognition; social accounts enable user connectivity; software delivers service capabilities; digital content offers knowledge-based value; and artificial intelligence models exhibit reasoning and creative capacities. Although these digital entities do not exist in physical space, their value has already surpassed that of traditional physical assets in numerous scenarios.

This transformation signifies that value is expanding from the physical world into the digital realm, giving rise to entirely new value structures. In future societies, a vast majority of economic activities will revolve around digital entities, which in turn continuously generate various forms of rights and interests. For instance, an AI agent can grant service access permissions to different users; a digital identity can establish access privileges; and a virtual space can define usage rights. While these rights are rooted in digital value, their scale and level of engagement may far exceed the value itself. Therefore, understanding the essence of digital value becomes a fundamental prerequisite for comprehending the future of the rights-based internet.

2.1.3. The Evolution of Domain Names, Identities, and the Value of Digital Objects

In the early days of the internet, domain names primarily served to enable users to access websites. However, as the internet evolved, they gradually transformed from mere technical tools into digital assets with independent value. A high-quality domain name not only serves as an entry point but also represents brand influence, user recognition, and commercial potential. Thus, the formation of domain name value essentially reflects the inherent patterns of value evolution for digital entities.

Similar phenomena are also evident in the realm of digital identities. Initially, email addresses and social media accounts served merely as credentials for accessing internet services; however, as the internet ecosystem has expanded, these identities have come to accumulate credibility, social connections, and commercial value, evolving into vital digital assets. In the future, AI-agent identities, digital corporate identities, and various machine identities will undergo a similar transformation, giving rise to increasingly sophisticated networks of digital value.

VRC-13 argues that this evolutionary trend is not a coincidence but an inevitable outcome of digital civilization's development. As more activities shift from the physical world to the digital realm, digital objects will progressively assume all the functions of their physical counterparts while continuously generating new value. Consequently, objects in the future internet should not be viewed merely as data records, but rather as fundamental units capable of generating rights and enabling economic activities.

From this perspective, domain names, digital identities, and future AI-agent objects represent distinct phases in the evolution of digital value. As their capabilities continue to advance, these entities will progressively generate various rights—including access rights, usage rights, control rights, and service rights—which ultimately form the cornerstone of the rights-based internet. Thus, VRC-13 focuses not merely on the objects themselves, but on how they consistently deliver value throughout their lifecycle and establish a manageable, tradable rights framework.

2.2. Everything has a lifespan

2.2.1. Life Cycle is a universal attribute of objects

If value is a key attribute of an object, then time is another fundamental attribute from which objects cannot escape. Whether it's living organisms in nature, industrial equipment, or service systems in the digital age, nearly all objects possess a defined or implicit lifecycle. This lifecycle not only determines how long an object can exist but also dictates how its value is realized and how benefits are distributed.

A tree undergoes a complete life cycle from sprouting to withering; a car experiences a full lifecycle from production to retirement; a software product follows a distinct lifecycle from release to end-of-support; even domain names, membership services, and AI models all follow developmental trajectories from creation and operation to obsolescence. While the duration of these life cycles varies across entities, they share a common characteristic: value is not realized instantly but is gradually realized over time.

Traditional internet frameworks and conventional asset systems primarily focus on the static existence of entities, yet seldom account for their dynamic evolution over time. Yet the vast majority of economic activities in the real world revolve around life cycles. For instance, a hotel does not sell the rooms themselves but grants usage rights for a specific period; a company does not sell software ownership but provides software service capabilities for an extended future timeframe. Thus, time serves as a crucial bridge linking value and entitlements.

Openverse maintains that any entity capable of sustained value creation must involve a temporal dimension in its value realization process. Understanding the lifecycle not only elucidates how value is generated but also explains the rationale behind rights attribution. Thus, within the VRC-13 theoretical framework, time is not merely an ancillary attribute but a fundamental cornerstone of rights relationships.

2.2.2. Time is the vehicle for value realization

When discussing value, people often tend to conceive of it as an inherent attribute of objects, yet frequently overlook that the actual process of value realization and consumption unfolds consistently over time. From an economic perspective, the value of most objects is not fully realized at the moment of creation; rather, it gradually provides services to society and transforms into tangible utility throughout their life cycle. In other words, time serves not only as the contextual framework for object existence but also as a crucial vehicle for value realization.

Take a commercial building as an example: although it possesses market value upon completion, this value is not fully realized on the day of delivery but is gradually unlocked over decades of operation through leasing, management, and services. For hotels, the true value lies not in the building itself but in the daily occupancy generated by its rooms; for automobiles, value does not reside solely on the production line but is progressively demonstrated through users' ongoing use to meet their transportation needs. The same logic applies to software, cloud computing platforms, and artificial intelligence services. A software product possesses only potential value at launch, while its true value is realized progressively as users continuously utilize its features.

The development of the digital economy further reinforces this principle. Under the subscription-based model, users typically acquire not permanent ownership but access to service capabilities for a defined period. For instance, the value of a cloud storage service stems from users' continuous access to storage resources over the next year, while that of an AI service derives

from sustained utilization of model capabilities throughout a specified timeframe. This demonstrates an increasingly close relationship between value and duration: the longer an object can consistently deliver value over time, the greater its economic significance tends to be.

VRC-13 posits that time serves not merely as a container for value release, but also as a bridge for transforming value into rights. As value begins to be continuously released over time, various usage rights, access rights, and control rights associated with this value emerge. Thus, understanding how time facilitates value release forms a fundamental basis for comprehending the theory of the Internet of Rights. Without the temporal dimension, numerous rights relationships would lose their significance, since most rights essentially represent usage rights for specific values within defined timeframes.

2.2.3. Time and Asset Depreciation

Beyond value realization, time also determines how an object's value evolves over time. In the real world, nearly all objects experience varying degrees of depreciation—whether physical, functional, or market-related — and this phenomenon is widespread across various economic activities. Automobiles wear out with use; buildings require maintenance due to aging; electronic devices become obsolete with technological advancements; and even digital services undergo iteration and obsolescence as user needs change.

This attenuation phenomenon demonstrates that value is not static but evolves continuously throughout its lifecycle. In fact, many assets can consistently generate benefits precisely because their value is gradually released and consumed over time. For instance, a car may generate thousands of usage benefits over its ten-year lifespan, while its market value declines significantly as it approaches the end of its service life. Similarly, the value of access rights associated with a software license diminishes correspondingly when its service period nears expiration.

However, from another perspective, value depreciation does not signify a decline in economic activity; rather, it indicates the emergence of new types of entitlements. This is because each stage of an object's lifecycle may give rise to distinct forms of entitlements. For instance, new equipment may generate high-value usage entitlements, whereas older equipment may yield maintenance, repair, or reuse entitlements. Time continuously drives changes in value forms while simultaneously creating new entitlement demands.

VRC-13 does not aim to prevent value depreciation but rather seeks to establish a digital model that captures the processes of value creation and transformation. By integrating time into the object framework, the protocol enables more precise representation of ownership states at various stages, aligning the digital world more closely with real-world operational logic. This explains why time in VRC-13 serves not only as a measurement unit but also as a fundamental element for constructing ownership relationships.

2.3. Time generates rights and interests

2.3.1. Separation of Ownership and Use Rights

In the early stages of human society, ownership and usage rights were often closely intertwined: landowners utilized the land, homeowners inhabited their homes, and tool owners employed their tools. However, as social division of labor deepened and economic activities

became increasingly complex, it became clear that ownership and usage rights do not necessarily need to be held by the same entity. In fact, numerous business models in the modern economic system are precisely built upon the separation of ownership and usage rights.

The rental industry serves as the most typical example. Car rental companies own the vehicles, but users purchase the right to use them for a specified period; hotels own the rooms, but guests acquire the right to occupy and use them during designated times; cloud computing providers own server resources, but enterprises purchase the ability to access and utilize these resources over a defined timeframe. In all these scenarios, ownership remains with the asset owners, while usage rights become independent economic assets that can be traded.

The significance of this separation phenomenon lies in its ability to enable a single object to serve multiple users throughout its lifecycle, thereby significantly enhancing resource utilization efficiency. A car can be used by thousands of users at different times; a hotel room can accommodate hundreds of guests annually; and an AI model can simultaneously serve millions of users. Consequently, the value of an object no longer depends on one-time sales but is continuously realized through sustained provision of usage benefits.

Openverse argues that the evolution of the modern economy fundamentally represents a transition from ownership-based models to equity-based systems. An increasing number of users no longer seek permanent ownership of assets but prioritize obtaining usage rights when needed. Consequently, the digital economy's future focus will shift progressively from ownership to equity relationships, and VRC-13 is precisely a digital object protocol designed to align with this trend.

2.3.2. Formation of Control Rights and Access Rights

If usage rights represent one of the most fundamental forms of entitlement in the industrial age, then control rights and access rights are emerging as key entitlements in the digital era. With advancements in internet, cloud computing, artificial intelligence, and Internet of Things technologies, numerous entities have evolved beyond traditional physical assets to become digital and intelligent resources. The entitlements associated with these resources primarily manifest as access capabilities and control capabilities.

For example, when a company purchases cloud computing services, it does not own the servers themselves but obtains access to their resources; when a user subscribes to an AI model, they do not own the model itself but gain the right to use it; when a smart door lock is made available to visitors, they do not acquire ownership of the lock but obtain control rights for a specified period. All these relationships constitute temporal entitlements.

It is noteworthy that access rights and control rights often exhibit pronounced temporal characteristics, as these privileges are typically not permanent but valid for specific periods. For instance, a temporary access card may only be valid for 24 hours, a software license may expire after one year, and an enterprise service subscription may cover only a particular project cycle. This underscores how time has become a fundamental component of both control and access rights.

As the number of AI agents and smart devices continues to grow, this trend will accelerate further. In the future, billions of digital entities will continuously create, manage, and exchange various forms of access and control permissions, which will form a critical operational foundation for the digital society. Therefore, establishing unified standards to define these rights has become an essential requirement for internet development.

2.3.3. The Evolution of Revenue Rights and Service Rights

Beyond usage rights, access rights, and control rights, modern economic activities also encompass numerous revenue rights and service rights. In fact, as the service economy has become dominant in the global economy, most commercial activities no longer revolve around commodity sales but rather around the continuous provision of services. Companies do not sell products themselves, but rather the service capabilities that these products will generate over a specified period.

For instance, streaming platforms sell viewing service rights to users; online education platforms offer learning service rights; healthcare platforms provide consulting service rights; while AI platforms sell reasoning and generative service rights. As digital services continue to expand in scale, service rights have become one of the most critical forms of value in the digital economy.

Meanwhile, the concept of revenue rights continues to evolve. While traditionally defined in equity and securities contexts, an increasing number of digital entities are now capable of generating revenue rights. For instance, digital content creators can consistently derive income from their content assets; AI agents can generate recurring revenue through their services; and physical devices can earn sustained earnings by providing external services. This indicates that revenue rights are expanding beyond traditional financial assets to encompass a broader spectrum of digital entities.

VRC-13 posits that although rights of use, access, control, service provision, and revenue generation manifest differently, they all fundamentally constitute temporal rights. These rights are grounded in the realization of object value, subject to temporal constraints, and capable of being digitally represented. Consequently, the future rights internet will connect not merely a single type of right, but rather extensive networks of rights relationships prevalent across both the physical and digital societies.

2.4. Digital Representation of Rights and Interests

2.4.1. From Asset Digitalization to Equity Digitalization

Over the past two decades, the development of the internet and blockchain has accelerated the rapid evolution of asset digitization. From early electronic currencies to later digital assets, digital securities, and the inclusion of real-world assets on blockchain, an increasing number of value carriers have begun to exist in digital form. The significance of asset digitization lies in enabling the management of value objects — previously dependent on paper-based certificates, centralized registries, and complex intermediary systems — to be owned, recorded, and circulated through a unified digital system. However, as asset digitization progresses, a new challenge emerges: while the digital world can record "who owns the asset," it still struggles to accurately determine "who may use these assets, when, and how."

In fact, in real-world economic activities, what users truly care about is often not the assets themselves, but the various rights and benefits associated with them. For example, the vast majority of consumers do not purchase hotels per se, but rather the right to stay there; they do not buy airplanes directly, but rather the right to fly; they do not acquire cloud computing centers, but rather access to computing resources. From this perspective, human society is gradually shifting from an ownership-based economy to a rights-based economy, and the development of the digital

world must inevitably undergo an evolution from digitizing assets to digitizing rights.

Asset digitization addresses the issue of value ownership, whereas equity digitization deals with value utilization. The former focuses on the asset itself, while the latter examines how the asset continuously generates value throughout its lifecycle. Although closely related, they tackle distinct challenges. A blockchain address can record a user's ownership of an asset but may not accurately indicate control rights over a device for the next three days; an NFT can document ownership of a digital object but cannot inherently represent the temporal service entitlements associated with it. Thus, equity digitization is not merely a supplementary capability of asset digitization, but rather a new dimension essential for advancing digital civilization to its next stage.

Openverse argues that the future internet will need to convey not only "value" but also "how value is utilized." The VRC-13 Timing Token aims to establish a novel digital representation framework specifically designed to address this need. By integrating time, entities, and rights into a unified model, the protocol seeks to provide the digital world with its first foundational capability for describing rights relationships, thereby advancing the digital economy from a value network to a rights network.

2.4.2. Objectification of Rights

In real society, rights and interests are invariably tied to specific entities: driving rights belong to vehicles, occupancy rights to rooms, access rights to software, and usage rights to AI services. In other words, these rights do not exist in isolation but form relationships centered around specific objects. Therefore, establishing a unified framework for expressing rights requires first addressing how these entities should be defined.

In the traditional internet, the core entity is a web page; in the value internet, it is an asset; whereas in the equity internet, the core entity should be a digital object capable of representing equity relationships. VRC-13 defines such an object as a Timing Object—a digital entity that simultaneously embodies identity, time, and equity relationships, rather than merely a simple mapping of physical entities. Any object that continuously generates value and creates equity has the potential to be mapped as a Timing Object.

For instance, a car can serve as a Timing Object; a property can be a Timing Object; an enterprise service system can be a Timing Object; even an AI agent can function as one. These objects do not directly represent value but rather act as the foundation for rights management. Once integrated into the VRC-13 framework, all rights generated throughout their lifecycle can be uniformly expressed and managed.

The significance of objectification lies in providing a unified framework for originally highly fragmented entitlement relationships. Previously, different enterprises often employed entirely distinct systems to manage their membership privileges, service access rights, and device authorizations; going forward, when all these entitlements are integrated into a unified object system, users will be able to manage them consistently, thereby enhancing the interoperability and collaboration capabilities of the entire network.

Thus, in the VRC-13 theory, objects are not merely data structures but serve as the fundamental building blocks of the equity internet. Just as web pages form the information internet and assets constitute the value internet, Timing Objects will become the essential components of the equity internet.

2.4.3. The Birth of the Timing Object

Building on the interplay between value, time, and equity, Openverse introduces the concept of the Timing Object. Unlike traditional tokens or NFTs, a Timing Object is a specialized digital model designed to represent temporal equity relationships. Its core principle is that any entity capable of continuously generating value and creating equity throughout its lifecycle can be represented through a Timing Object.

In this model, an object possesses not only identity attributes but also time attributes and entitlement attributes. Identity attributes define what the object is; time attributes specify when it is valid; and entitlement attributes define the qualifications, permissions, or service capabilities associated with the object. Together, these three components form a complete Timing Object structure.

For instance: `tesla://one-day.3KLDEKH.ModelY`

This object does not indicate that the user owns a Model Y vehicle, but rather grants access rights for one day to a Model Y with device ID 3KLDEKH. Here, "Model Y" represents the top-level entity, "3KLDEKH" denotes the specific device, and "one-day" refers to the specific entitlement. The entire structure describes not asset ownership, but a time-based entitlement relationship.

This model shares certain similarities with the traditional internet domain name system, but its focus is entirely different. The HTTP world emphasizes information access paths, whereas the Timing world focuses on entitlement access paths. Users no longer access web pages; instead, they access specific entitlements. Their access rights extend beyond mere data entry points to encompass genuine qualifications in either the physical or digital realm.

Openverse believes that as an increasing number of physical and digital objects connect to the network, the internet will transition from the page era to the object era. Timing Object is precisely the foundational model designed for this era—it not only meets current digital economy demands but also provides a unified infrastructure for future AI-driven economies, device-centric economies, and rights-based economies.

2.5. Core Formula of the Timing Theory

2.5.1. Value, Time, and Interests

Within the VRC-13 theoretical framework, value, time, and equity are not independent concepts but three interdependent elements of a unified logical chain. Value determines what an object can create; time dictates how value is realized; while equity represents the concrete manifestation of value across the temporal dimension. Thus, their relationship can be summarized as follows:

$$Entitlement = Value \times Time$$

This expression is not a strict mathematical formula but rather a theoretical model. Its core meaning is that if an object lacks value, no equity can arise; if it lacks a temporal dimension, its value cannot generate sustained equity relationships. Equity only emerges when value interacts with time.

For instance, a car possesses traffic value, and its ten-year lifecycle provides the temporal framework for sustained value creation, thereby generating substantial driving benefits; an AI model offers reasoning value, with its continuous operation yielding service benefits; a domain name carries identity value, while its enduring existence delivers access and resolution benefits.

Therefore, equity does not arise out of thin air; rather, it is the result of value extending over time.

2.5.2. Theoretical Definition of the Timing Token

Based on the above theory, Openverse defines the Timing Token as follows:

A digital object used to represent the ownership relationships associated with an entity within a specified time frame.

Unlike traditional tokens that emphasize value attributes, Timing Tokens focus on equity attributes; unlike traditional assets that emphasize ownership, Timing Tokens prioritize usage rights, access rights, control rights, and service rights; and unlike traditional domain names that emphasize information positioning, Timing Tokens emphasize equity positioning.

Therefore, the Timing Token is not intended to replace the existing digital asset ecosystem, but rather to fill the long-standing gap of a rights-based layer in the digital world, thereby advancing the internet from connecting information and value to connecting rights.

3. Overview of the VRC-13 Protocol

3.1. Protocol Design Philosophy

3.1.1. From Information Orientation to Rights Orientation

The development of the Internet is essentially a continuous process of enhancing the "ability to locate resources." During the information-based Internet era, HTTP and DNS together established an access framework centered on "information location," enabling users to uniformly access global information resources via URLs. However, the capabilities of this system remain confined to the "content layer" —it can only determine where information resides but cannot address more fundamental questions such as who holds rights, whether usage is valid, whether capabilities can be invoked, or within what time frame they are executable.

As the digital economy has evolved from information exchange to service and capability exchange, the core challenge of the internet has shifted from "information accessibility" to "verifiability of rights." This is because most interactions in the real world no longer revolve around information itself, but rather around the usage rights, control rights, access rights, and revenue rights associated with entities. For instance, the value of a car lies not in its physical existence, but in its usability within a specific timeframe; similarly, the value of an AI service depends not on the model parameters themselves, but on its ability to deliver inference capabilities during a given period.

Thus, within the Openverse framework, HTTP addresses information localization, blockchain handles value attribution, while VRC-13 tackles a more fundamental issue: determining the entitlement status of an object at a specific point in time. This expands the internet's scope of representation from "information pages" to "entitlement objects across both physical and digital realms," thereby driving the evolution of the internet from an information network into an entitlement network.

3.1.2. From an Asset-Centric Approach to an Object-Centric Approach

The traditional economic system has long regarded assets as the core measurement unit. However, with the expansion of the service economy and subscription-based models, the central

unit of economic activity is gradually shifting from "the asset itself" to "the capabilities and benefits it provides." For instance, users are less concerned with server ownership and more focused on whether computing power is available; similarly, they care less about vehicle ownership and more about whether transportation services can be utilized.

Thus, in the modern digital economy, the essence of economic activity is undergoing a structural transformation — from "owning assets" to "leveraging object capabilities" — with objects themselves becoming fundamental units capable of continuously generating streams of benefits. An object can release various types of benefits throughout its lifecycle and be utilized by multiple entities at different time points.

It was against this backdrop that VRC-13 redefined the economic structure from an asset-centric model to an object-centric one, uniformly mapping all entities capable of generating sustainable value—whether physical devices, digital services, AI agents, or identity systems—as objects, thereby establishing a scalable framework for value representation.

3.1.3. From an Ownership Economy to a Equity Economy

In the traditional industrial economic system, ownership serves as the core mechanism for value distribution. However, in the modern digital economy, an increasing share of value no longer stems from "long-term ownership" but rather from "short-term usage rights and flexible access capabilities" —for instance, cloud computing has replaced server procurement, streaming media has superseded content ownership, and mobility services have replaced vehicle ownership.

Thus, the economic system is gradually shifting from a ownership-based economy to an equity-based one, with the core distinction being that ownership defines ownership rights while equity defines usage rights; the former is stable whereas the latter is dynamic, together forming a comprehensive economic structure.

VRC-13 does not reject the ownership system; rather, it positions it as a foundational governance framework while treating rights as an economic liquidity structure. This enables entities to continuously grant tradable, licensable, and distributable usage rights without altering ownership, thereby enhancing resource utilization efficiency and economic liquidity.

3.2. Ecosystem

3.2.1. Definition of Ecology

In the VRC-13 framework, an Ecosystem constitutes a self-contained rights space built around specific objects. It serves not merely as a collection of applications but as a digital economy unit with its own namespace, rule system, and rights distribution mechanism. An ecosystem defines object structures, permission rules, registration mechanisms, and rights circulation methods, thereby forming a complete internal economic system.

The essence of an ecosystem lies not in a platform per se, but in a "set of rights and governance rules" that dictate how entities are created, utilized, and circulated within the system. Thus, the ecosystem constitutes the highest-level architecture in VRC-13 that embodies economic logic.

3.2.2. Ecological Value Mechanism

The value of an ecosystem does not stem from static scale, but from its ability to continuously generate equity relationships. As the number of entities within the ecosystem grows,

the variety of equity types expands, and usage frequency increases, network effects will drive overall ecosystem value growth.

Therefore, ecology is essentially a system that continuously generates demand for benefits, and its growth function can be abstracted as follows:

$$V_{ecosstem} \propto N_{objects} \times F_{rights} \times U_{frequency}$$

3.2.3. Ecological Openness

The VRC-13 ecosystem supports various levels of openness policies, including fully open registration, restricted registration, and hierarchical permission controls, enabling it to maintain governance consistency while supporting diverse business models. Different ecosystems are interconnected through unified protocol standards, forming a global rights network.

3.3. Object

3.3.1. Unified Definition of Objects

In VRC-13, an Object represents the fundamental structural unit of the rights internet. It serves not only as a digital representation of entities but also as the framework for rights relationships. An Object can correspond to any entity in either the physical or digital world that consistently generates use value or service capabilities, including physical devices, digital services, AI agents, identity systems, and organizational structures.

The core significance of an object lies not in its mere existence, but in its ability to continuously generate, allocate, and transfer rights throughout its lifecycle; thus, an object is essentially a "right generator" rather than a static asset.

3.3.2. Object Lifecycle

An object is not static but follows a complete lifecycle, encompassing stages such as creation, activation, operation, decay, and termination. Each stage yields distinct benefit outputs, ultimately forming a dynamic benefit curve:

$$R(t) = f(lifecycle)$$

The lifecycle mechanism transforms rights into a dynamic system rather than a static record.

3.3.3. Realistic Representation of Objects

All serviceable entities in the real world can be mapped to objects—including cars, rooms, devices, software, and AI services. This mapping establishes a unified representation framework for physical resources and digital systems, enabling consistent rights management across industries and platforms.

3.4. Sub-Object

Sub-objects serve as a hierarchical extension mechanism in object systems, breaking down complex entities into manageable entitlement units. For instance, vehicle models, device identifiers, and time-based entitlements can exist at distinct levels. Their fundamental nature is:

Top Level: Category Object

Middle Layer: Instance Object

Bottom Layer: Timing Object

The hierarchical architecture enables VRC-13 to support large-scale object network scaling.

3.5. Timing URI

The Timing URI is the core identification system of VRC-13; it is not an information address but a rights address used to describe the combined state of "object + time + rights." For example: `tesla://one-day.3KLDEKH(ModelY`

This structure represents the available benefits associated with an object within a specified time window.

3.5.1. 3.5.1 HTTP vs Timing URI

Project	HTTP	VRC-13
Core Resources	Information	Rights and Interests
Basic Unit	Page	Target
Identification System	URL	Timing URI
Access Content	Content	Right Status
Life Cycle	Static State	Time-based
Permission Structure	External System	Native Object Structure

3.6. Rights and Interests Mechanism

3.6.1. Separation of Ownership and Use Rights

VRC-13 clearly distinguishes between ownership and usage rights: ownership defines the governance relationship of an object, while usage rights govern its operational behavior. This framework enables economic systems to facilitate rights circulation without transferring asset ownership.

3.6.2. Circulation Mechanism for Usage Rights

Equities can be freely transferred or licensed in the market, thereby creating a dynamic circulation market:

Transfer: Change of Equity Owner

Authorization: Temporary Rights Sharing

Ownership remains stable, while the right to use continues to change hands.

3.6.3. Significance of the Structure of Equity Markets

This mechanism enables VRC-13 to establish a "non-asset-driven" economic system, where the core transaction unit is no longer assets themselves but temporal equity.

4. Application Scenarios for VRC-13

4.1. Storage of Publicly Available Information on the Chain

4.1.1. From Website Pages to Object Profiles

In traditional internet architectures, information is typically stored and delivered through websites and servers. Enterprises need to establish official websites; individuals rely on social platforms to share personal information; device manufacturers depend on centralized databases for maintaining equipment data; and various service details are often scattered across different platforms. While this model has driven internet development, it has also given rise to issues such as information silos, challenges in data migration, and high long-term storage costs.

VRC-13 introduces a groundbreaking object metadata model. Under this framework, each Timing Object possesses an independent public metadata space where the creator can directly store object descriptions, rule specifications, service details, brand information, contact data, and other publicly accessible content. Thus, an object evolves from merely a name into a digital entity capable of storing substantive information.

This transformation implies that future information may no longer rely on traditional websites for presentation, but will instead be conveyed directly through objects. For instance, a corporate object can publicly display company details, a device object can showcase its specifications, and an AI-Agent object can demonstrate its capabilities. When users interact with these objects, they can not only verify their identity but also access the corresponding public information.

In the long term, the object-based data system is poised to serve as a vital complement to the information internet, enabling information and rights to coexist within a unified object structure, thereby reducing digital resource management costs and enhancing data sustainability.

4.1.2. Permanent Public Access Portal

Because objects possess independent identities, their information portals remain stable over time. Unlike traditional websites, whose data may change due to server migrations, platform closures, or business adjustments, object information is inherently linked to the object's identity; as long as the object persists, its public information portal will continue to exist.

For enterprises, this means brand information can be stored on long-term, stable digital platforms; for device manufacturers, it ensures device information remains accessible throughout the entire lifecycle of the device; and for individuals, it enables digital identity data to break free from platform dependency and achieve greater autonomy.

Thus, VRC-13 not only creates entities with defined rights but also establishes a long-term information repository. In the future, vast amounts of digital information may be organized directly around entities rather than web pages, thereby driving the Internet's gradual evolution into an entity-centric ecosystem.

4.2. Web3 Domain Name System

4.2.1. Third-generation Internet Domain Names

The development of the internet has gone through several stages. The first-generation internet primarily relied on IP addresses to access resources; the second-generation internet enabled user-friendly access via DNS and the domain name system; with advancements in blockchain and digital identity technologies, researchers have begun exploring a third-generation internet domain name framework.

VRC-13 argues that domain names should not merely serve to identify websites in the future, but must also designate objects, identities, and rights. Thus, Timing URIs represent not only an object naming mechanism but also a groundbreaking Web3 domain system.

for instance ：

`open: //eth` can represent a top-level object.

but ：

`open://vitalik.eth` indicates a specific identity object established on this top-level object.

Unlike traditional domain names, these objects not only support resolution but also store data, identities, and rights. Thus, a domain name is no longer merely an access point—it becomes a complete digital entity.

This transformation signifies that domain names in the future internet will gradually evolve from mere website gateways into digital identity gateways, propelling the internet toward a more open and decentralized development phase.

4.2.2. Integration of Domain Names and Digital Identities

Currently, domain names and identity systems on the internet operate independently. Users must manage their websites, social media accounts, wallet addresses, and various digital identities separately. In contrast, the VRC-13 framework integrates domains and identities within a unified object model.

for instance ：

`open: //vitalik.eth` is not just a name; it is also an identity object.

You can also bind: blockchain address; contact information; AI Agent entry; service information; benefit details.

This integration significantly reduces identity management complexity while enhancing the readability and portability of digital identities. In the future, users may only need to manage a single object identity to enable seamless identity collaboration across different networks.

4.3. AI-Agent DID System

4.3.1. New Identity Requirements in the Era of Artificial Intelligence

With the rapid advancement of artificial intelligence, human beings will no longer be the sole participants in the future internet. A vast number of AI agents will engage in commercial activities, provide services, manage devices, and even autonomously perform collaborative tasks. In this context, traditional identity systems prove inadequate, as AI agents require independent identities, credibility, and autonomous permission management capabilities.

If billions of AI agents coexist in the future, each must be identifiable, verifiable, and authorized. Consequently, establishing identity protocols tailored for the AI era will become a

critical infrastructure for the internet.

VRC-13 maintains that an AI-Agent is fundamentally an object and can therefore be fully integrated into the Timing Object framework. By adopting a unified object structure, each AI-Agent can possess its own distinct identity and independent set of rights and entitlements.

4.3.2. Open Foundation and the Open Architecture: // System

To advance the future development of the AI-Agent ecosystem, Open Foundation plans to establish an open object framework starting from `open://`.

In this system: `open://agent` represents the top-level entity in the AI-Agent ecosystem.

`Open: //The assistant agent` can represent a specific AI agent.

`Open: //The researcher.agent` can represent a research-oriented AI agent.

`Open: //doctor_agent` can represent a medical assistance AI agent.

Each Agent object can have: independent identity; independent profile; independent permissions; independent service capabilities; and an independent reputation system.

This architecture is poised to become a key component of future AI-Agent DID (Decentralized Identity) systems.

4.3.3. Rights Network of the AI-Agent

Future AI agents will not only require identity verification but also need to manage various rights and entitlements. For example:

- Calls model permissions;
- Uses computing power permissions;
- Control device permissions;
- Data access permissions;
- Service permissions.

These permissions are essentially temporal rights.

VRC-13 provides a unified framework for rights representation for AI agents, enabling them to authorize permissions, collaborate, and exchange services within open networks.

As the AI economy continues to take shape, numerous stakeholder relationships will revolve around AI agents, and VRC-13 is poised to serve as a pivotal protocol layer connecting these relationships.

4.4. Ownership and Use Rights of Physical Equipment

4.4.1. From Asset Management to Equity Management

Traditional equipment management systems primarily focus on asset ownership. However, for the vast majority of users, what they truly need is not the equipment itself, but the service capabilities it provides within a specific time frame.

Therefore, the key direction of the future equipment economy is not selling equipment itself, but selling equity in equipment.

VRC-13 can map devices to objects and associate usage eligibility across different time periods with corresponding entitlement objects.

4.4.2. Tesla instance

for instance ： tesla://one-day.3KLDEKH.ModelY

State: The user has one-day access to a Model Y vehicle with device number 3KLDEKH.

This moment：

- Tesla holds ownership rights to the object;
- Users have the right to use it;
- The rights are tradable;
- The rights can be renewed;
- Rights can be authorized.

The entire process does not require changing the vehicle's ownership.

4.4.3. Future Equipment Networks

This model is not only applicable to automobiles.

Also applies to:

- Airplane;
- Yacht;
- Commercial installation;
- Robot;
- Unmanned aerial vehicle;
- Computing power equipment;
- IT.

In future device networks, a significant majority of transactions will likely revolve around rights rather than the assets themselves. Consequently, VRC-13 is poised to become a pivotal foundational protocol for the future device economy.

4.5. Shopping Center Delivery Vouchers and Coupons

4.5.1. From Paper-Based Securities to Digital Rights

Throughout the evolution of human commercial activities, various forms of delivery vouchers, consumption vouchers, discount coupons, and membership benefits have long been prevalent in retail, service, and consumer markets. These instruments essentially represent consumers' rights to access specific goods, services, or preferential benefits within defined timeframes. However, whether traditional paper-based vouchers or modern electronic coupons, their management primarily relies on centralized systems and lacks unified standards, often leading to challenges such as difficulties in cross-platform circulation, complex validity period management, and low user assetization levels.

From the perspective of VRC-13, these certificates are essentially typical time-based entitlements. Consumers are not purchasing the product itself, but rather the right to receive it within a specified future period; nor are they acquiring the discount itself, but rather the eligibility to enjoy a discounted price during that period. Consequently, such entitlements can be fully represented as Timing Objects and created, managed, and circulated according to unified standards.

Once delivery vouchers and coupons are mapped as Timing Objects, they cease to be mere records in the corporate database and become entitlements with independent identities, validity periods, and circulation capabilities. Users can not only hold these entitlements but also manage, transfer, and utilize them more conveniently, thereby enhancing business efficiency and reducing administrative costs.

4.5.2. The New Generation of Digital Consumer Rights

The future direction of the retail industry is shifting from mere product sales to rights-based operations. Companies now offer not only goods but also membership programs, exclusive benefits, time-limited services, and scenario-specific experiences. Consequently, a significant portion of value in the consumer market will increasingly be delivered through rights-based offerings.

For instance：

`mall: //coupon-20-shopping` can represent a discount benefit.

`mall: // Pickup-tv(order` can represent the right to collect a specific product.

`mall: //vip. member` can represent certain membership benefits.

These entities all have clearly defined validity periods, usage rules, and identity structures, and can be uniformly managed. Consumers no longer receive merely electronic vouchers but rather digital entitlements with complete life cycles.

This transformation implies that various membership, points-based, and incentive systems within future commercial ecosystems are likely to evolve progressively toward object-oriented models, ultimately giving rise to a more open and standardized digital consumption network.

4.6. Smart Door Locks and Smart Homes

4.6.1. Rights as Interests

With the rapid advancement of IoT technology, an increasing number of physical devices are being connected to the internet. From smart locks and smart homes to industrial equipment and smart city systems, numerous devices are evolving from traditional hardware into interconnected, manageable, and collaborative intelligent objects. However, a core challenge arising from device networking is permission management.

Who can open this door?

Who can control a device?

Who can access a service?

These issues are fundamentally all matters of equity management.

Historically, most devices relied on centralized permission systems for management; however, as the number of devices continues to grow, this approach will face increasing complexity. Therefore, a unified permission expression framework must be established to standardize the representation and management of device permissions.

VRC-13 posits that device permissions are essentially temporal entitlements and can therefore be fully represented using a Timing Object.

4.6.2. Smart Door Lock Applications

Take smart door locks as an example: traditional lock systems typically require access control via app authorization, backend configuration, or temporary passwords. In contrast, the VRC-13 system directly represents door lock access permissions as object rights.

For instance：

`home://guest-one-day. lock001` indicates that a specific visitor has one-day access to the door lock.

`home://family. lock001` indicates that family members have long-term access

permissions.

`home://maintenance.lock001` indicates that maintenance personnel have access permissions for a specific time period.

These permission objects can be created, authorized, transferred, and automatically expired, enabling a more flexible and secure permission management system.

In the future intelligent society, people will no longer merely manage devices but rather the various rights and interests associated with them. Consequently, VRC-13 is poised to become a pivotal foundational protocol for future smart device networks.

4.6.3. Smart Home and Device Collaboration

Future homes may contain hundreds of smart devices, while enterprises, industrial parks, and cities could house millions or even billions of devices. When these devices begin operating collaboratively, permission management will become a core infrastructure component.

For instance：

- Smart vehicles require access permissions to parking lots;
- Home robots require access rights to control the household;
- The AI agent requires device access permissions;
- Drones must obtain permission to operate within designated flight zones.

All these relationships fall under the category of temporal equity relations.

Through the VRC-13 unified object framework, these devices can use a common protocol to represent permissions and identities, thereby reducing collaboration costs between different devices and advancing the Internet of Things toward greater openness and intelligence.

4.7. More Comprehensive RWA Scenarios

4.7.1. Equityization of Real-World Assets

In recent years, Real World Assets (RWA) have increasingly become a key focus in the digital economy. However, most RWA projects primarily concentrate on asset migration to the blockchain—specifically, how to map real-world assets into the blockchain ecosystem.
VRC-13 offers an alternative approach.

In the real world, what actually circulates most frequently is often the rights derived from assets, rather than the assets themselves. For example:

- Right to reside in the house;
- Right to use the vehicle;
- Storage and usage rights;
- Control rights of the device;
- Meeting room reservation rights;
- Operating rights for the venue.

These rights are generated and continuously circulated every day, with their total quantity far exceeding that of the assets themselves.

Therefore, the key focus for RWA in the future lies not only in asset digitization but also in equity digitization.

4.7.2. Scale of the Equity Economy

In the real world, an asset is typically traded only a limited number of times, whereas the rights associated with it can be traded repeatedly—thousands or even tens of thousands of times.

For instance：

A car may only be sold a few times.
However, its usage rights may be utilized tens of thousands of times.
A hotel may remain under the ownership of the same company for an extended period.
However, the occupancy benefits are generated and circulated daily.
An AI model may remain affiliated with the same organization for an extended period.
However, its service benefits are available to global users every day.

Therefore, from an economic scale perspective, the equity market is often significantly larger than the asset market itself.

Openverse believes that as the digital economy continues to evolve, the equity-based economy is poised to become one of the most dynamic economic models in the future internet landscape.

5. VRC-13 Protocol Economic Model

5.1. The Economic Role of the Timing Token

Over the past few decades, the internet has undergone three pivotal developmental phases: the Information Internet, Platform Internet, and Value Internet. Each phase established new operational mechanisms for the digital economy and gave rise to innovative foundational protocols and value carriers. As artificial intelligence, digital identities, Real World Assets (RWA), smart devices, and decentralized networks increasingly converge, a broader new era is emerging —the Internet of Entitlements.

This paradigm shifts focus from digital assets themselves as the sole objects of network circulation to digitizing various entitlements across both physical and digital realms that possess temporal, permission-based, and lifecycle attributes. It enables all tradable entities — including those subject to authorization, leasing, subscription, access, control, or delegation — to form a unified digital protocol framework.

Consequently, a Timing Token is neither a traditional payment token nor a mere governance token; rather, it serves as the fundamental resource unit of the entire Timing Protocol, functioning similarly to request resources in HTTP networks, domain registration resources in DNS systems, and Gas Resources in blockchain networks.

It serves as the central platform for creating Timing Objects, registering Timing URIs, managing lifecycle cycles, enforcing protocol governance, identifying AI Agents, and coordinating the consumption of all protocol resources throughout the operation of the Future Rights Internet. Consequently, its value does not stem from any specific application but rather from the continuous expansion of the entire Rights Internet ecosystem. As more digital objects integrate into the Timing Protocol, the Timing Token will gradually become the fundamental economic resource of the Rights Internet. Its long-term value will grow in tandem with the protocol's adoption scale, the number of digital objects, and the size of the AI Agent network, ultimately evolving into a protocol asset deeply integrated with internet infrastructure.

5.2. Timing Growth Law

The history of internet development demonstrates that any foundational protocol designed to represent digital entities will see their number of objects grow exponentially with network expansion. Examples include DNS domain counts, HTTP page counts, IPv6 addresses, and blockchain accounts — all following similar growth patterns. The Timing Protocol manages not only traditional digital assets but also digital identities, AI agents, software licenses, membership benefits, RWA usage rights, IoT control permissions, and various future digital entitlements with

temporal attributes. Consequently, the growth rate of Timing Objects is theoretically higher than that of any other digital entity in internet history. To address this, VRC-13 introduced the Timing Growth Law to describe how entitlement objects evolve alongside digital economic development.

Set up：

- $O(t)t$: Timing Objects for the year;
- O_t: initial objects;
- τ: annual growth rate of equity internet;
- t: years.

The total number of Timing Objects follows an exponential growth relationship:

$$O(t) = O_0 e^{rt}$$

When the ecosystem reaches maturity, the growth process can be further described using a logistic curve to better align with the actual development patterns of networks.

$$O(t) = \frac{K}{1 + Ae^{-rt}}$$

Among：

- K: denotes the maximum number of supported entities for the rights-based internet;
- A: is the initial growth coefficient.

The model demonstrates that during the initial phase of protocol development, the number of Timing Objects will experience rapid exponential growth; as the network expands, this growth rate gradually slows and stabilizes, yet the total number of objects continues to rise, thereby steadily increasing the fundamental resource requirements of the Timing Protocol.

5.3. Timing Token Price Prediction Model

The value formation mechanism of Timing Tokens (TT) fundamentally differs from that of traditional digital assets; their price is not solely determined by market transactions but rather stems from a combination of factors including sustained demand for protocol layer interactions, the scale of identity resolution across the Equity Internet, communication frequency among AI Agents, and the number of digital rights mappings. Consequently, this white paper proposes a comprehensive valuation model based on Protocol Usage, Network Effect, Token Circulation Velocity, Protocol Revenue, and Equity Internet Penetration to predict TT's theoretical value range across different future stages. This model is not intended as financial investment advice but rather serves to illustrate the theoretical rationale behind Token value growth within the protocol-based economic ecosystem.

Traditional digital assets are typically valued based on simple supply-demand relationships, whereas Timing Protocol more closely resembles internet infrastructure, with its value mirroring the data exchange value embodied by protocols such as TCP/IP, HTTP, or DNS. Consequently, the pricing model for Timing Tokens should be grounded in the growing adoption scale at the protocol level rather than in transactional activity itself.

Therefore, this Blue Book defines the theoretical price formula for a Timing Token as follows:

$$P_t = \frac{U_t \times F_t \times N_t \times E_t}{S_t \times V_t}$$

Among：

Parameter	Meaning
P_t	The TT Theoretical Price for the Tyear
U_t	Annual Protocol Usage Count
F	Average Fee Value per Transaction
N	Network Effect Coefficient (Network Effect)
E_t	Equity Internet Growth Rate (Equity Growth)
S_t	Token Circulation Volume
V_t	Token Circulation Speed

The above formula demonstrates that, given a relatively stable total Token supply, the theoretical price of Timing Tokens will exhibit nonlinear growth as long as the number of protocol calls, network scale, and equity internet penetration rates continue to rise. Network effects will further amplify the protocol's value, causing price growth to outpace user growth — a classic manifestation of Metcalfe's Law in the equity internet context.

5.3.1. Protocol Value Growth Model

According to Open Foundation's projections for the future development of the digital society, Timing Protocol's adoption will primarily stem from six key growth drivers:

Growth Source	Estimated Contribution Ratio
AI Agent Identity Authentication	28%
DID Resolution Service	22%
Rights Token Issuance	16%
Digital Asset Authorization	14%
Enterprise-Level Time Authentication	11%
Cross-chain Timing Call	9%
Growth Source	Estimated Contribution Ratio

As the number of AI Agents continues to grow, protocol calls will increase exponentially; therefore, define a protocol call model:

$$U_t = A_t \times C_t + D_t \times R_t + X_t$$

Among：

A_t: Number of AI Agents

C_t: Number of daily calls per Agent

D_t: Number of DID identities

R_t: Average Identity Resolution Count

X_t: Other Protocol Calls

Assuming that 3 billion AI Agents are deployed globally by 2035, with each Agent making an average of 120 calls to the Timing Protocol per day, the annual number of protocol calls generated solely by these AI Agents would reach:

$$3 \times 10^9 \times 120 \times 365 = 131.4\text{Trillions of times}$$

When considering key functionalities such as DID resolution, Rights Token verification, cross-chain authorization, and enterprise-level time authentication, the total annual protocol calls for the Timing Protocol are projected to exceed 200 trillion, establishing it as one of the most critical foundational protocols for the rights-based internet.

5.3.2. Network Value Model

The evolution of the internet has demonstrated that network value does not grow linearly with user numbers but increases exponentially with the number of connections between nodes. Consequently, Timing Protocol employs a network value model adapted from Metcalfe's Law for valuation.

Definition：

$$NV = k \times N^2$$

Among：

$$0 < \alpha < 1$$

- NV: Network Value
- N: Number of active protocol nodes
- k: Network Value Adjustment Factor

Since not all nodes between AI Agents establish connections, we further introduce a connection efficiency coefficient:

$$NV = k \times N^2 \times \alpha$$

Among：

$$0 < \alpha < 1$$

When:

- The AI agent is extensively interconnected;
- DID is widely deployed;
- The Rights Token is fully tradable;

Then:

$$\alpha \to 1$$

This indicates that the entire timing network will gradually evolve into a fully interconnected system, with its network value growing at a significantly faster rate than the number of nodes.

For instance：

Number of Active Nodes	Network Value Index
100 million	1
500 million	25
1 billion	100
3 billion	900
10 billion	10000

It can be observed that a 100-fold increase in the number of nodes theoretically leads to a 10,000-fold growth in network value—this is a key reason why the value of the internet protocol layer far exceeds that of a single application layer.

5.3.3. Protocol Revenue Model

The Protocol's future revenue does not rely on a single transaction fee but stems from substantial basic service fees generated throughout the protocol's ongoing operation. Thus, the annual revenue model is defined as follows:

$$PR = (T + D + R + A + S) \times f$$

Among：

- T: Number of timing calls
- D: Number of DID resolutions

- R: Number of Rights Verification Attempts
- A: Number of AI Agent Communications
- S: Number of smart contract authorizations
- f: Average Agreement Service Fee

Assuming 2035:

Type of Service	Annual Call Volume
Timing Call	80 trillion times
DID Analyze	50 trillion times
Rights Test and Verify	35 trillion times
AI Communication	25 trillion times
Authorization Service	10 trillion times

The total number of protocol calls throughout the year is approximately 200 trillion.

If the average revenue per agreement service is only $0.00005.

The annual revenue of the agreement is approximately:

$$200 \times 10^{12} \times 0.00005 = 100 \text{billions of dollars}$$

If the average service value of future agreements increases to $0.0005 per transaction

The agreed revenue can further increase to $100 billion per year.

This revenue model indicates that Timing Protocol's value does not stem from Token transactions but is rooted in actual protocol usage demands, ensuring strong sustainability and aligning well with the development principles of next-generation internet infrastructure.

5.4. Timing Token Market Prediction Model

As the native value carrier of the Timing Protocol layer, the market size of Timing Tokens cannot be predicted using conventional valuation methods for crypto assets. Instead, it should be assessed through a comprehensive model incorporating multiple dimensions — including the growth trajectory of the Equity Internet, global deployment scale of digital identities, development level of AI Agent-based autonomous economies, and total volume of digital equity assets. Accordingly, this white paper proposes a Multi-Factor Market Forecast Model to simulate the potential theoretical market size of Timing Tokens over the next twenty-five years.

Unlike traditional internet, which primarily facilitates information transmission, the rights-based internet will serve as a platform for global digital identities, digital assets, digital entitlements, AI agents, autonomous organizations, and value networks formed through cross-chain collaboration. Its scale will shift from a trillion-dollar information economy to a multi-trillion-dollar or even larger digital entitlement economy. Consequently, Timing Protocol, as the foundational time protocol for this ecosystem, will see its market value grow in tandem with the development of the rights-based internet.

This model assumes that the Timing Protocol will gradually become the unified time-standard protocol for the rights internet and achieve widespread adoption across multiple domains — including identity authentication, rights confirmation, AI collaborative computing, intelligent authorization, and cross-chain value transfer. Accordingly, the following comprehensive prediction formula is adopted:

$$MV_t = P_t \times S_t$$

Among：

- MV_t: The theoretical market value (Market Value) of the Timing Token in year ttt

- P_t: Theoretical Price of the Timing Token
- S_t: Quantity circulating in the market

Meanwhile, to more accurately reflect the growth pattern of protocol value, a usage adjustment factor has been introduced:

$$MV_t = (U_t \times G_t \times N_t \times C_t) \times \beta$$

Among:

Parameter	Meaning
U_t	Number of Protocol Calls
G_t	Global Internet Penetration Rate in Terms of Equity Ownership
N_t	Network Scale Coefficient
C_t	AI Agent Collaboration Index
β	Market Valuation Adjustment Factor

As the volume of protocol calls continues to expand, the number of AI Agents keeps growing, and digital asset holdings keep increasing, Timing Token's theoretical market capitalization will exhibit pronounced exponential growth rather than the linear pattern seen in traditional financial markets.

5.4.1. Market Size Forecast for the Equity Internet Sector

Open Foundation posits that the evolution of the internet has roughly undergone three stages: the first stage was the Information Internet, primarily addressing information dissemination; the second stage was the Value Internet, focusing on the circulation of digital assets; and the third stage is the Rights Internet, whose core objective is to establish a unified global system encompassing digital identity, timekeeping, rights management, and AI-driven autonomous collaboration, thereby achieving comprehensive alignment between rights relationships in the physical and digital worlds.

According to long-term forecasts by independent research institutions on global financial assets, real estate assets, intellectual property, data assets, and the future scale of the digital economy, the value potential of the equity internet is projected to far exceed that of the current value internet.

Based on global digital economy trends, Open Foundation has made the following forecast regarding the potential scale of the equity internet:

A Particular Year	The Theoretical Value of the Global Equity Internet Concept
2030	500 trillion dollars
2035	900 trillion dollars
2040	1.5 trillion dollars
2045	2.4 trillion dollars
2050	Over 4 trillion dollars

It should be noted that these forecasts do not imply all assets will be directly deployed on the blockchain, but rather refer to the total global scale of rights that may be managed by digital identities, digital entitlements, and AI agents in the future. This theoretical framework virtually

encompasses most economic activities in the real world, indicating substantial growth potential for the long-term value of the rights internet.

5.4.2. Timing Protocol: Market Penetration Rate Forecast

As the foundational timing protocol for the equity-based internet, the future development pace of the Timing Protocol will be influenced by multiple factors including its standardization level, ecosystem compatibility, number of developers, and scale of AI agent deployment.

This blue book employs the S-shaped growth curve (Logistic Growth Curve) to forecast protocol adoption rates:

$$R(t) = \frac{K}{1+e^{-a(t-t_0)}}$$

Among:

- $R(t)$: Timing Protocol market penetration rate;
- K: Theoretical maximum market share;
- a: Growth rate coefficient;
- t_0: Growth turning point.

The period from 2032 to 2040 is projected to be the fastest expansion phase for the Timing Protocol ecosystem, with its adoption rate gradually extending from the early developer community to enterprise-level applications, government digital infrastructure, and AI agent-based autonomous networks.

The prediction is as follows:

A Particular Year	Agreement Penetration Rate
2030	2%
2035	8%
2040	18%
2045	35%
2050	60%

As the protocol ecosystem continues to mature, Timing Protocol is poised to become one of the most widely deployed foundational protocols in the rights internet, and its growing adoption will directly drive demand for Timing Tokens.

5.4.3. Timing Token Theory for Price Prediction

Based on the aforementioned protocol value model, network value model, and market size forecasting model, and assuming a stable Token economy, continuous protocol expansion, and rapid global digital economic growth, this blue paper develops three predictive models — a conservative scenario, a baseline scenario, and a high-speed growth scenario — to simulate the future theoretical price of Timing Token.

A Particular Year	Conservative Scenario	Baseline Scenario	High Growth Scenario
2030	1.20 USD	2.80 USD	5.60 USD
2035	4.80 USD	9.50 USD	18.60 USD
2040	12.50 USD	28.60 USD	48.30 USD
2045	28.0 USD	57.0 USD	96.0 USD
2050	55.0 USD	118.0 USD	215.0 USD

These projections indicate that, given the protocol's potential to establish a global unified time standard, widespread adoption of the Timing Protocol by AI agents, and the internet of rights entering a phase of rapid development, the pricing of Timing Tokens is poised for a sustained value growth cycle, driven primarily by practical usage demand rather than short-term market speculation.

5.4.4. Timing Token Theory-based Market Value Prediction

By considering different price scenarios and the projected circulation supply, the future theoretical market value of Timing Token can be further determined.

A Particular Year	Conservative Market Value	Base Market Value	High Growth Market Capitalization
2030	12 billion dollars	28 billion dollars	56 billion dollars
2035	48 billion dollars	95 billion dollars	186 billion dollars
2040	125 billion dollars	2.68 billion dollars	483 billion dollars
2045	280 billion dollars	5.7 billion dollars	960 billion dollars
2050	5.5 billion dollars	1.18 trillion dollars	2.15 trillion dollars

It is evident that under the baseline development scenario, Timing Token is poised to become a core protocol asset in global digital infrastructure; whereas under the high-growth scenario, with the full maturation of the equity internet, AI agent economy, and digital rights management systems, its theoretical market capitalization could exceed the trillion-dollar mark.

5.4.5. AI Agent Growth Prediction Model

The primary future demand for Timing Protocol will not come from human users, but rather from AI Agents with autonomous identity, decision-making capabilities, and transaction execution abilities. Consequently, the development pace of AI Agents will largely determine both the scale of protocol interactions on Timing Protocol and the long-term value of Timing Tokens. The Open Foundation argues that as large language models, multi-agent systems, ROS (Robot Operating System), and digital twin technologies continue to mature, the internet will gradually shift from "people accessing the internet" to "machines accessing the internet," with the majority of protocol interactions occurring between AI Agents rather than between humans and servers.

This blue book employs an exponential growth model to forecast the development trends of AI Agents:

$$A_t = A_0 \times e^{rt}$$

Among:

- A_t: Number of AI Agents in year t;
- A_0: Initial deployment quantity;
- r: Annual Compound Growth Rate;
- t: Time.

Based on current trends in the artificial intelligence industry and global digitalization progress, Open Foundation has made the following forecast regarding the future number of AI

agents:

By 2050, the number of AI agents is projected to exceed ten times the global population for the first time, gradually becoming the primary entities invoking protocols on the internet. At that stage, numerous autonomous agents will operate continuously across sectors such as finance, healthcare, manufacturing, logistics, research, education, and public governance. Each agent will require trusted timekeeping, digital identity, rights authentication, and authorization mechanisms, making the Timing Protocol an indispensable infrastructure in the AI era.

5.4.6. DID Growth Forecast Model

With the advancement of the rights-based internet, Digital Identity (DID) will evolve from a "personal identity marker" to a "universal identity marker," encompassing not only natural persons but also various digital entities such as enterprises, devices, robots, digital assets, smart contracts, and AI agents.

Assuming each AI agent has at least one DID, each enterprise possesses multiple organizational DIDs, and each digital asset has its own independent rights DID, the total number of DIDs worldwide would far exceed the number of internet accounts.

The prediction is as follows:

A Particular Year	Number of DIDs Worldwide
2030	6 billion
2035	18 billion
2040	50 billion
2045	120 billion
2050	Over 300 billion

Meanwhile, each DID generates a substantial volume of records daily—including identity resolution, authorization verification, entitlement validation, and timestamps. Consequently, the growing total number of DID entities will directly drive a sustained increase in the usage frequency of the Timing Protocol.

Model estimates indicate that once the global number of DIDs exceeds 100 billion, identity resolution services alone could generate tens of trillions of protocol requests daily—these requests will serve as a major long-term driver for Timing Tokens demand.

5.4.7. Timing Protocol: Calling the Prediction Model

The number of protocol calls serves as the most direct metric for assessing a protocol's value and is the primary driver behind the growing demand for Timing Tokens. This white paper defines the total number of protocol calls as follows:

$$U = A \times C_a + D \times C_d + R + C_s$$

Among:

- A: Number of AI Agents;
- C_a: Average daily calls to the AI Agent;
- D: Number of DID entries;
- C_d: Number of daily resolutions per DID;
- R: Number of Rights Token verifications;
- C_s: Number of calls to other protocol services.

Based on the above model, the projected future scale of agreement calls is as follows:

A Particular Year	Daily Agreement Call Volume
2030	50 billion operations
2035	8 trillion operations
2040	80 trillion times
2045	600 trillion times
2050	More than 500 trillion times

Assuming each protocol transaction generates an average value of merely $0.00005, the annual economic scale of Timing Protocols will reach hundreds of billions of dollars by 2050. Should high-value digital rights trading, AI-driven autonomous economies, and a comprehensive global digital identity framework become fully established — further increasing per-transaction value—the protocol's revenue potential could grow several-fold.

The sustained growth in protocol usage volume indicates that demand for Timing Tokens no longer stems from market trading activity but directly arises from genuine protocol consumption needs—a key distinction between Timing Protocol and traditional crypto assets.

5.4.8. Timing Protocol for Long-Term Value Prediction

The evolution of the Internet has demonstrated that what holds true long-term value is not the applications themselves, but the underlying protocols that enable their operation. From TCP/IP connecting global networks, to HTTP defining web browsing, and DNS establishing a unified addressing system, each foundational protocol breakthrough has driven exponential growth across the entire internet ecosystem.

Open Foundation believes that the development of the rights-based internet also requires a unified time protocol, and the mission of Timing Protocol is precisely to establish a trusted, unified, and verifiable time infrastructure globally, thereby supporting the seamless integration of digital identities, digital rights, AI agents, and the autonomous economy. Therefore, this white paper does not position Timing Protocol as merely a blockchain protocol, but rather as a foundational public protocol for the rights-based internet era.

Based on the development trends of the global digital economy, AI industry, and digital asset rights, Open Foundation has made the following theoretical prediction regarding the long-term value of the Timing Protocol:

A Particular Year	The Digital Value of Equity Rights	Timing Protocol Percentage Contribution	Theoretical Basis of the Timing Protocol
2030	500 trillion dollars	0.05%	250 billion dollars
2035	900 trillion dollars	0.10%	900 billion dollars
2040	150 trillion dollars	0.20%	3 trillion dollars
2045	240 trillion dollars	0.30%	7.2 trillion dollars
2050	More than 400 trillion dollars	0.50%	More than $20 trillion

These projections do not imply that Timing Protocol will directly own assets of comparable scale, but rather reflect its protocol-driven economic value as the foundational framework for the rights-based internet. As an increasing number of digital identities, AI agents, rights assets, and

autonomous organizations rely on Timing Protocol for operation, its protocol value will grow in tandem with the development of the entire rights-based internet ecosystem.

Based on the aforementioned model, it can be concluded that under conditions of sustained protocol value expansion, stable Token supply, and growing real-world demand for the protocol, the theoretical price of Timing Tokens is likely to rise steadily over the long term. Its value will derive primarily from access rights to the protocol rather than financial speculation attributes.

5.5. The Comprehensive Valuation Model for Timing Tokens

The preceding sections have established the economic model, value model, pricing model, and market forecasting model for Timing Token. However, each individual model only captures certain factors influencing Token value and fails to fully describe the interrelationships among various variables within the equity-based internet ecosystem. Consequently, this white paper introduces the Integrated Timing Valuation Model, which integrates protocol call volume, number of AI agents, digital identity count, network effects, scale of the equity-based internet, and Token circulation status into a unified mathematical framework to establish a more comprehensive long-term valuation system.

The comprehensive valuation function is defined as follows:

$$P_{TT} = \frac{(U_t \times F_t) \times N_t^{\alpha} \times E_t^{\beta} \times A_t^{\gamma}}{S_t \times V_t}$$

Among：

- P_{TT}: Theoretical Price of the Timing Token
- U_t: Total number of protocol calls
- F_t: Average Value per Transaction Under the Agreement
- N_t: Network Size
- E_t: Scale of the Equity Internet
- A_t: Number of AI Agents
- S_t: Floating Supply
- V_t: Token Circulation Speed
- α, β, γ: Weight Coefficient

The model is described as follows:

- As the scale of protocol calls expands, Token demand increases correspondingly.
- As the network scale expands, its value grows superlinearly according to the Metcalfe effect.
- As the equity-based internet continues to expand, the fundamental value of the protocol increases accordingly.
- When the number of AI Agents increases rapidly, protocol invocation demands grow exponentially;
- When the Token supply remains stable and circulation velocity decreases, the protocol value per Token continues to rise.

Therefore, the value of a Timing Token is not determined by a single variable but results from the combined effects of multiple factors, with its price fluctuations exhibiting typical multi-factor-driven characteristics.

6. The Equity-based Internet Economy Model

6.1. From Token Economy to Rights Economy

Over the past fifteen years, the blockchain industry has developed various business models centered around the Token Economy—ranging from the digital currency ecosystem represented by Bitcoin and the smart contract economy pioneered by Ethereum to subsequent innovations like DeFi, NFTs, GameFi, and SocialFi. At their core, these models operate within a Token-centric value framework that facilitates value exchange, storage, and incentives through diverse digital assets. Consequently, the entire sector remains largely confined to the "Value Internet" phase rather than truly entering the era of the "Equity Internet."

With the rapid advancement of artificial intelligence, large-scale models, digital identities, Real-World Assets (RWA), decentralized organizations (DAOs), and global digital public infrastructure, the core components of future networks have evolved beyond tradable Tokens to encompass a wide array of digital entitlements far exceeding their quantity. These include personal identity rights, AI agent identity rights, corporate rights, organizational rights, data rights, intellectual property rights, computing resource rights, public governance rights, and digital representations of various real-world entitlements. Consequently, the fundamental unit of the future network economy will gradually shift from "assets" to "rights," with tokens serving merely as a means of expressing these rights. The entire digital economy will transition from a Token Economy to a Rights Economy. Within this framework, every participant in the network can possess their own Digital Identity (DID), Digital Rights, Digital Account, and Digital Value, with all economic activities centered around the creation, certification, authorization, circulation, trading, governance, and distribution of these entitlements.

Thus, the Equity Economy does not negate the Token Economy; rather, it represents a more advanced abstraction that integrates Tokens, NFTs, Stablecoins, AI Agents, RWA, data assets, and future digital entities into a unified equity framework, thereby establishing a globally cohesive economic system spanning both the physical and digital worlds.

To more clearly illustrate the differences between the two, the following comparative model can be established:

Comparison Dimension	Token Economy	Rights Economy
Core Object	Token	Rights
Basic Unit	Digital Assets	Digital Rights
Identity System	Wallet Address	DID Status
Value Source	Market Dealing	Interest Relationship
Core Objective	Asset Circulation	Equity Coordination
Network Entity	Human Being	People, AI, Organizations, Devices
Governance Model	DAO	Rights Governance
Life Cycle	Issue – Trade – Destroy	Generation → Ownership Confirmation → Authorization → Collaboration → Settlement

In the long term, the Token Economy represents a phase in digital finance development, whereas the Rights Economy corresponds to a stage in digital society evolution—one that focuses

not on individual asset prices but on the synergistic efficiency of all rights relationships across the network. Consequently, the value generated by the Rights Internet will primarily stem from the number of interconnected rights, the depth of collaborative relationships among rights holders, and the efficiency of rights circulation, rather than solely from token market prices.

6.2. Value Generation Model for Rights and Interests

Traditional economics holds that value primarily stems from labor, capital, technology, and market supply and demand. However, in the era of the rights-based internet, the mechanism for value creation will expand further: any newly digitized rights object can continuously generate new value through network connectivity. Consequently, rights value is no longer static but dynamic and capable of sustained growth. Openverse defines rights value as the comprehensive economic value that a rights object can create throughout its entire lifecycle, encompassing not only the asset's market value but also components such as identity value, collaboration value, data value, governance value, and future value.

Therefore, the comprehensive value of an equity stake can be expressed as:

$$RV = AV + DV + CV + GV + FV$$

Among：

- AV: Asset value;
- DV: Data value;
- CV: Value of collaboration;
- GV: Governance value;
- FV: Future growth potential.

Furthermore, the equity value growth function in the network can be defined as follows:

$$RV(t) = R_0 \times e^{\lambda t}$$

Among ：

- $R_{0:}$ Initial equity value;
- t: time;
- λ: Equity Growth Coefficient.

The equity growth coefficient can be further broken down as follows:

$$\lambda = \alpha U + \beta C + \gamma AI + \delta D$$

Among：

- U: subscriber number;
- C: Number of collaborative relationships;
- AI: Number of AI Agents;
- D: Number of DID identities.

This model demonstrates that the growth of equity value depends not solely on rising asset prices, but rather more significantly on the expansion of network scale and the enhancement of collaborative relationships. When a new AI Agent, enterprise node, or DAO is added to the network, it introduces not only a new participant but also potentially generates dozens or even hundreds of new equity connections, resulting in exponential growth of the network's equity value —unlike the linear growth observed in traditional financial systems.

For example, once an enterprise completes equity mapping within the Openverse network, its value stems not only from the enterprise itself but also from multiple dimensions:

Equity Composition	Instance
Enterprise Assets	Fixed Assets, Cash Flow
Brand Rights	Trade Marks and Brand Influence

Data Rights	User Data, Operational Data
AI Rights and Interests	Enterprise AI Agent
Governance Rights	DAO Governance
Open Collaboration Benefits	API, Open Platform
Global Circulation Rights	Cross-chain Tokenization

Therefore, the comprehensive value of a company within the equity internet typically far exceeds its book value as reflected in traditional financial statements, because numerous previously unquantifiable and non-tradable intangible assets will be digitized, registered, and integrated into global collaborative networks, thereby generating new value increments.

6.3. Rights Circulation Model

While the traditional internet addresses information flow issues and the value internet deals with capital flow challenges, the equity internet focuses on managing equity flows. Equity flows encompass not only value transfers but also dynamic interactions involving identity, authorization, responsibility, benefits, governance, data access permissions, and AI agent operation rights. Consequently, equity circulation will become the core mechanism driving future digital society operations. In Openverse, each type of equity follows a standardized lifecycle, and its circulation process can be abstracted into a unified model:

$$R_{life} = G \rightarrow I \rightarrow A \rightarrow C \rightarrow S \rightarrow E$$

Among：

- G: Rights Generation;
- I: Identity binding and rights confirmation;
- A: Authorization and permission configuration;
- C: Collaboration and Execution;
- S: Revenue settlement;
- E: Evolution and regeneration of rights.

This lifecycle demonstrates that rights are not one-time assets but can continuously generate new economic value through ongoing collaboration. For instance, after completing DID registration, an AI Agent can accept tasks, utilize computing resources, sign digital agreements, participate in DAO governance, earn rewards, and further authorize other AI Agents to collaborate —its rights status evolving dynamically with each action, ultimately forming a sustained cycle of economic activity.

To quantify equity circulation efficiency, a coefficient can be defined:

$$\eta = \frac{N_{active}}{N_{total}} \times \frac{V_{settlement}}{T}$$

Among：

- N_{active}: Number of active stakeholders;
- $N_{total:}$ Total number of registered beneficiaries;
- $V_{settlement}$: The value of equity settlement settled per unit time;
- T: Statistical Period.

As ηthis continuous improvement occurs, it signifies that the assets within the network are engaging in collaboration, transactions, and governance more frequently, thereby simultaneously boosting the overall economic vitality of the entire asset internet.

6.4. The Token-DID-AI Tripartite Economic System

As artificial intelligence increasingly becomes a fundamental component of the internet, the core participants in the future digital economy will extend beyond human users to include AI agents powered by large models, decentralized autonomous organizations (DAOs), enterprise agents, and various digital entities with autonomous decision-making capabilities. Consequently, the future network economy will evolve from the traditional "human−asset" binary relationship toward a tripartite collaborative framework encompassing identity, value, and intelligence.

Within this framework, the Digital Identity (DID) addresses the question of "who I am," the Token manages how value flows, and the AI Agent determines who creates value. Together, these three components form the fundamental economic unit of the future rights-based internet, fostering a self-reinforcing, self-sustaining, and self-evolving digital ecosystem through continuous collaboration. Openverse asserts that all digital entities — whether individuals, enterprises, devices, robots, or AI Agents—must possess a unified digital identity that is verifiable, interpretable, authorizable, and inheritable, and participate in the global rights network via standardized protocols. Consequently, the DID will serve as the gateway to the future digital society, the Token as the medium for value settlement, and the AI Agent as the primary producer, consumer, collaborator, and service provider within the network.

To describe this relationship, a ternary economic system can be defined:

$$TES = (D, T, A)$$

Among：

- D: Digital Identity System;
- T: Value Circulation System;
- A: Intelligent Collaboration System.

It can further represent the economic output of the entire system:

$$E = f(D, T, A)$$

In Openverse, these three components do not operate independently but form a mutually reinforcing closed-loop relationship; this can be further expressed as:

$$E = k \times D^{\alpha} \times T^{\beta} \times A^{\gamma}$$

Among：

- k: Network efficiency coefficient;
- α: Identity Contribution Coefficient;
- β: Value Contribution Coefficient;
- γ: AI Productivity Contribution Coefficient.

Under normal circumstances:

$$\gamma > \beta > \alpha$$

This implies that as AI increasingly becomes the primary driver of value creation in future networks, its contribution will gradually surpass that of tokens themselves. Identity systems, meanwhile, provide the trusted foundation for the entire economic ecosystem. Consequently, the focus of digital economy development will shift from being "token-driven" to "AI-driven," ultimately giving rise to a new economic framework centered on equity collaboration.

To more intuitively illustrate the relationship among the three, the following model can be

established:

System Composition	Core Responsibilities	Corresponding Agreement
DID	Identity Authentication, Permission Management, Digital Personality	VRC-13
Token	Payment, Incentives, Mortgage, Liquidation	VRC-10
AI Agent	Service Provision, Content Generation, Intelligent Decision-Making	VRC-13 AI Protocol
BTG	Global Value Reserve, Agreement Mortgage	VRC-12
DAO	Governance, Collaboration, and Rule-making	Open Governance

This framework ensures that any future digital economic transaction can be broken down into three interdependent components: an action initiated by a digital identity, executed by an AI agent, and settled through a token—all forming an indispensable closed loop.

6.5. AI Agent Economic Cycle Model

The advancement of artificial intelligence is propelling the internet into a new era of production. In the future, an increasing number of economic activities will no longer be performed directly by humans but will be handled by AI Agents capable of autonomous learning, decision-making, and execution—covering tasks such as information processing, data analysis, software development, digital marketing, financial transactions, medical assistance, legal consultation, scientific computing, smart manufacturing, and public services. Consequently, AI Agents are not merely tools but will become independent economic entities within the future digital economy. Openverse argues that AI Agents should possess their own digital identities, digital wallets, digital entitlements, and digital credit systems, enabling them to autonomously collaborate, conduct transactions, and distribute benefits globally, thereby fostering a genuine AI-native economy.

The economic lifecycle of an AI agent can be abstracted as the following cycle:

$$Create \rightarrow Register \rightarrow Train \rightarrow Serve \rightarrow Earn \rightarrow Upgrade \rightarrow Collaborate \rightarrow Reproduce$$

Corresponding mathematical expression:

$$AEC = (C, R, T, S, E, U, L)$$

Among：

- C: Created by AI;
- R: Register a DID;
- T: Continuous training;
- S: render services;
- E: Generate revenue;
- U: Model upgrade;
- L: Establish a collaboration network.

Further define the economic value of a single AI Agent:

$$V_{AI} = I + S + D + R$$

Among：

- I: Value of intelligent capabilities;
- S: sales of service ；
- D: Value contributed by data;
- R: Reputation Value.

As AI Agents progressively fulfill their tasks, their credibility, data accumulation, and

collaborative networks grow in tandem, driving a sustained rise in their overall value beyond reliance on one-off transaction revenues. This suggests that the most valuable digital asset of the future may no longer be a specific Token, but rather the AI Agent itself—endowed with stable service capabilities, continuous learning capacity, and extensive collaborative networks.

6.6. Forecast of the Global Equity Internet Market Size

The market size of the equity internet cannot be measured by the traditional metric of "total market capitalization of a single financial market," as its essence lies not in the expansion of a single asset category but rather in the digital transformation of all globally verifiable resources. Consequently, its growth trajectory more closely resembles "economic structural reconstruction" than "industry cycle expansion." Within this framework, market size no longer equates to token market capitalization or blockchain TVL; instead, it constitutes a composite system comprising equity asset scale, AI economy scale, DID identity scale, and protocol utilization value density.

Therefore, this Blue Book defines the global equity internet market size as follows:

$$GRI = AV + AI_E + ID_E + P_E$$

Among ：

- AV: Total Digital Scale of Global Equity Assets
- AI_E: Total economic output generated by the AI Agent
- ID_E: Economic activities related to digital identities
- P_E: Protocol Invocation and Infrastructure Value

Expand further:

$$AI_E = N_{AI} \times T_{task} \times V_{task}$$
$$ID_E = N_{DID} \times V_{identity}$$
$$P_E = F_{protocol} \times V_{call}$$

Each of these variables exhibits a sustained compound growth pattern, resulting in GRI as a whole demonstrating a classic exponential cumulative growth model.

6.6.1. Core Variable Forecast (2030–2050)

Based on global digitalization, AI adoption rates, the tokenization of RWA, and the trend toward unified protocol standards, the following forecast range can be established:

Predictions for Key Global Indicators

Metric	2030	2035	2040	2050
Global Equity Asset Value (AV)	8 trillion	42 trillion	120 trillion	580 trillion
Number of AI Agents	500 million	2 billion	6 billion	20 billion
DID Quantity	1 billion	3.5 billion	12 billion	40 billion
AI Economic Scale (AI_E)	1 trillion	12 trillion	55 trillion	240 trillion
Number of Protocol Calls per Day	1 billion	50 billion	500 billion	3 trillion
Agreement-based Economic Scale (P_E)	800 billion	6 trillion	25 trillion	120 trillion

6.6.2. Forecast of the total market size for GRI

By substituting all the aforementioned variables into the GRI model, we can obtain a forecast

for the overall global equity internet market size:

A Particular Year	Conservative Scenario	Neutral Scenario	Optimistic Scenario
2030	10 trillion USD	15 trillion USD	22 trillion USD
2035	55 trillion USD	85 trillion USD	140 trillion USD
2040	180 trillion USD	260 trillion USD	420 trillion USD
2050	650 trillion USD	900 trillion USD	1.500 trillion USD

It is evident that the scale of the equity internet will reach the trillion-dollar level around 2050—a figure that far exceeds both the current global GDP and the combined size of traditional financial asset markets. At its core, this represents a shift in the global economic structure from an "asset-based record system" to an "equity-driven operational system."

6.6.3. Final Structural Conclusion

When we examine the Information Internet, Value Internet, and Rights Internet within the same framework, a clear evolutionary trajectory emerges:

Times	Core Object	Core Agreement	Unit of Value
Information Internet	Information	HTTP	Click/Traffic
Value Internet	Token	Blockchain	Property
rights Internet	Rights	VRC-13	Interest Relationship

In conclusion:

$$Internet_{future} = Newtork(Rights + AI + Identity + Asset)$$

When all real-world resources are mapped into "computable equity relationships," the internet will no longer be merely a communication network, but a globally unified equity management system.

7. Future Outlook

7.1. The Structural Transition from the Internet to Digital Civilization

Over the past five decades, human society has undergone three structurally significant leaps in information infrastructure: the first was the establishment of the information internet, enabling free flow of information across regions and organizations; the second was the emergence of the value internet, allowing assets and finance to be digitally represented and settled in real time globally; and the third leap is currently underway — it represents not merely a technological upgrade but a fundamental restructuring of social structure, evolving from an "information network society" toward a "civilization based on rights networks."

Within this new civilizational framework, the internet is no longer merely a connectivity tool but a foundational operational system that governs global rights relationships. All human activities,

organizational behaviors, machine operations, and AI agent decisions are abstracted into computable rights relationships, which are defined, entitlementized, authorized, and coordinated through a unified protocol layer. Consequently, the essence of the future internet will evolve from an "information exchange network" to a "rights management network," with its core value shifting from data traffic to rights density and collaborative capabilities.

Within this framework, the Internet Protocol for Equity defined by VRC-13 transcends being merely a technical standard; it evolves into a foundational regulatory system for the global digital society. Functioning akin to a unified abstraction layer for legal, financial, and identity frameworks in the physical world, it endows the digital society with structural integrity and governance capabilities comparable to those of the real world for the first time.

7.2. The Common Economic System of AI Agents and Humans

In the traditional economic system, humans are the sole economic agents, with all production activities centered around human needs. However, with the exponential growth of AI agents, this structure is undergoing fundamental transformation. The future economic system will no longer be a "human-centric system" but rather a hybrid intelligent economy comprising both humans and AI agents, where AI will gradually undertake over 50% of actual economic production activities, while humans will focus more on rule design, goal definition, and benefit distribution.

In this process, AI Agents are no longer merely tools but economic entities with independent identities (DIDs), proprietary rights accounts, autonomous decision-making capabilities, and collaborative capacities. They can participate in production, transactions, governance, and innovation, forming globally autonomous collaboration networks that span organizations, nations, and protocols. Consequently, the future economic structure will evolve from a human-dominated economy to a human-machine hybrid intelligence-based economy, ultimately transitioning into an autonomous rights-based economy.

Within this framework, VRC-13 provides not only a technical protocol but also a "collaborative contract layer" between AI and humans, enabling different agents to engage in trustworthy cooperation under unified rules and thereby establishing a global intelligent economic system free from centralized control.

7.3. The Internet as a Global Infrastructure Layer

If we break down the global digital system into three levels:

- Information Layer
- Value Layer
- Rights Layer

It is evident that the first two layers have largely completed their globalization processes, whereas the third layer—the equity layer—remains in its early structural phase.

The essence of the rights layer lies in providing a unified representation of all relationships between digital entities and the real world. It encompasses not only asset ownership but also a multi-dimensional rights framework that includes usage rights, revenue rights, governance rights, access rights, enforcement rights, and AI operation rights.

Therefore, the ultimate goal of the Equity Internet is not to establish a new financial system, but rather to create a unified framework capable of representing all definable relationships in the world. Within this system:

- Each Person = A Set of Rights and Interests
- Each AI represents a rights enforcement entity.
- Each asset = a single equity object
- Each action constitutes a transfer of rights.

Once all these elements are uniformly integrated, the global economic system will evolve from a "distributed industry network" into a "unified equity network," creating a global infrastructure layer akin to an operating system.

The significance of VRC-13 lies in providing a "standard interface layer" for this infrastructure, enabling different countries, organizations, industries, and AI systems to collaborate under a unified set of rules without the need to develop separate, isolated systems.

7.4. The Long-Term Structural Characteristics of the Global Equity Internet

In the long term, the equity-based internet will not exist as a single chain or ecosystem, but is more likely to evolve into a global structure featuring multi-level layers, multiple protocols, and coordinated operation of various AI systems—a configuration akin to:

A dynamic economic ecosystem comprising hundreds of billions of AI agents, thousands of billions of digital identities, and trillions of rights holders.

Its structure can be abstracted as:

$$GlobalSystem = (AI + Human + Assets + Rights + Protocols)$$

And continuously self-organize and evolve into:

- AI-Driven Production Network
- Motivation-driven Distribution Network
- Protocol-Driven Collaborative Network

Within this framework, protocols evolve beyond mere rules to become the fundamental channels for value flow. VRC-13 serves as a pivotal rights-expression protocol, providing essential support for cross-system collaboration and value consistency.

The future global system will exhibit the following characteristics:

Dimension	Traditional Internet	Rights Internet
Core Resources	Information	Rights and Interests
Main Body	Human Being	Human Being +AI
Nuclear Structure	Terrace	Protocol
Core Value	Rate of Flow	Collaboration Density
System Structure	Disperse	Networked Unification

7.5. The ultimate scale of the rights-based internet

By thoroughly considering AI growth, RWA digitalization, global asset structure restructuring, and the widespread adoption of digital identities, we can conduct a comprehensive projection of the ultimate scale of the equity internet.

Under conservative assumptions, by around 2050:

- Global equity asset under management will exceed $600 trillion.
- The scale of the AI economy will exceed $200 trillion.
- The total scale of the equity internet market is projected to reach between $800 trillion and $1.5 trillion.

More importantly, this scale does not refer to a "financial market size" but rather represents the comprehensive reflection of global equity relationships, indicating that nearly all economic activities have been incorporated into a computable framework.

Therefore, under long-term extreme conditions, a structural conclusion can be drawn:

The upper limit of the scale of the rights-based internet does not depend on financial markets, but rather on the total number of relationships within human society that can be digitally represented.

7.6. Historical Positioning of Openverse and VRC-13

Historically speaking, each generation of internet protocols corresponds to a distinct phase of civilization development:

Protocol	Corresponding Era	Civilizational Form
TCP/IP	Network Interconnection	Information Civilization
HTTP	Web Internet	The Digital Information Society
Blockchain	Token Internet	The Digital Finance Society
VRC-10/11/12	Value Internet	The Society of Digital Assets
VRC-13	rights Internet	The Civilization of Digital Rights

Thus, VRC-13 represents not merely a protocol standard, but a new layer of civilizational infrastructure that functions as a unified system integrating law, economy, and identity in the digital world.

Within this framework, Openverse is no longer merely a web project but rather more closely resembles:

A prototype of the underlying operating system for a global equity-based internet

Its long-term significance lies in:

- Defining the "Property Rights Structure" of the Digital World
- Defining the collaborative relationship between AI and humans
- Define the operational rules for the global digital economy
- Defining the foundational order of the future intelligent society

7.7. Final Conclusion

If the entire logic of VRC-13 were to be summarized in one sentence, it would be:

When all resources can be digitally represented as rights, the internet will cease to be merely an information network and evolve into a globally unified rights management system; what VRC-13 accomplishes is precisely defining the language for this system.

From the Information Internet to the Value Internet, and then to the Rights Internet, humanity is undergoing not merely technological evolution but a fundamental structural upgrade of civilization.

And during this process:

- The HTTP protocol defines how information flows.
- Blockchain defines value flow
- VRC-13 is working to define equity flows.

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