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You Will Own Everything and Be Free: A Federated Fractal Network-State Architecture

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Abstract:
In this paper, I present a "Federated Fractal Network-State" architecture, which introduces a decentralized governance model inspired by the resilience and adaptability of the Armenian people. This model distributes authority across multiple layers. "Fractal" describes the self-similar patterns at each level—individual, community, state, and federation. "Federated" refers to the voluntary associations between these layers, enabling entities to operate autonomously while cooperating within a broader network. Together, this structure empowers individuals and communities. A key innovation here is the concept of a "receipt-token," a cryptographic identifier that confirms membership, tracks contributions, and grants voting rights and access to services within this ecosystem. In this model, tokenized governance ensures secure and scalable coordination, allowing the system to flexibly evolve. This architecture reduces barriers to adoption while fostering resilience, security, and innovation. It offers an alternative to traditional *nation*-states, enhancing global coordination, protecting against corruption, and remaining adaptable in an unpredictable world.

Keywords: Network-State Architecture, Federated Fractal Network, Decentralized Governance, Fractal Governance, Autonomous Communities, Network-State Implementation, Decentralized Autonomous Organizations (DAOs), Tokenized Governance, Armenian Diaspora Governance, Armenian Network State.

Resumen:

En este artículo presento una arquitectura de «red-estado fractal federada», que introduce un modelo de gobernanza descentralizada inspirado en la resistencia y adaptabilidad del pueblo armenio. Este modelo distribuye la autoridad en múltiples capas. El término «fractal» hace referencia a los patrones autosimilares de cada nivel: individual, comunitario, estatal y federal. «Federado» se refiere a las asociaciones voluntarias entre estos niveles, que permiten a las entidades operar de forma autónoma y cooperar dentro de una red más amplia. En conjunto, esta estructura capacita a individuos y comunidades. Una innovación clave es el concepto de «recibo-token», un identificador criptográfico que confirma la pertenencia, rastrea las contribuciones y otorga derechos de voto y acceso a los servicios dentro de este ecosistema. En este modelo, la gobernanza mediante tokens garantiza una coordinación segura y escalable, y permite que el sistema evolucione con flexibilidad. Esta arquitectura reduce las barreras de adopción y fomenta la resistencia, la seguridad y la innovación. Ofrece una alternativa a los estados-nación tradicionales, mejorando la coordinación global, protegiendo contra la corrupción y manteniéndose adaptable en un mundo impredecible.

Palabras clave: Arquitectura Red-Estado, Red Fractal Federada, Gobernanza Descentralizada, Gobernanza Fractal, Comunidades Autónomas, Implementación Red-Estado, Organizaciones Autónomas Descentralizadas (DAOs), Gobernanza Tokenizada, Gobernanza de la Diáspora Armenia, Red-Estado Armenia.

1. Introduction to the Network-State Concept

According to Balaji Srinivasan (2022), “a network state is a highly aligned online community with a capacity for collective action that crowdfunds territory around the world and eventually gains diplomatic recognition from pre-existing states." The model proposed in this paper is aligned with this definition of a network-state. A network-state is a decentralized, digital-native entity that operates mostly through digital networks rather than physical geography-bound territories. Unlike traditional states, which are defined by geographical borders and centralized governance, network-states are characterized by their reliance on technology, decentralized decision-making, and a global, distributed community of citizens.

Understanding the architecture of a network-state requires a shift in perspective from the physical and centralized paradigms of *nation*-states to the digital and decentralized paradigm of network-states. As we delve into the specific components and mechanisms that make up the proposed Federated Fractal Network-State architecture, we will explore how decentralization works from the perspective of each major network-state participant and their relation to one another. For instance, the network-state empowers individuals through voluntary contributions and decentralized decision-making but must address collective action challenges. But federation and subsidiarity localize decision-making, promoting participation, accountability, and resilience. Mechanisms like the dominant assurance contract (Tabarrok, 1998) encourage public good contributions, while stakeholder voting aligns participant interests with broader community benefits, boosting asset value when public goods are provided.

2. Federated Fractal Network-State Architecture Overview

The proposed Federated Fractal Network-State architecture is a novel structure for a network-state system consisting of four layers–an individual layer, a network-*community* layer, a network-*state* layer, and a network-*state federation* layer.

Fractal Network-State is a new term to describe the similar relationship between the participants within each layer. If one understands the relationship between individuals and network-*communities*, one also understands the relationship between network-*communities* and network-*states*, which is the same as the relationship between network-*states* and network-*state federations*.

Federated Network-State is another new term, which describes that network participants are voluntary federations of underlying participants in the network. A network-*community* is a federation of individuals. A network-*state* is a federation of network-*communities*. This Federated Network-State model is in contrast with monolithic network-state models that are characteristic of the earliest implementations and writings on the network-state concept. A monolithic network-state groups all its members together, governed by the same rule set, whereas in a Federated Network-State architecture each network-*community*, network-*state*, and network-*state federation* is capable of different forms of self-governance.

2.1. Summary of the Federated Fractal Network-State structure

To imagine the proposed Federated Fractal Network-State architecture, visualize an inverted, striated pyramid. Each network layer (the Individual layer, the Network-*community* layer, etc.) has a unique focus. These layers address different issues, and are composed of different participants.

Today's most common governance technology is the *nation*-state, which can perhaps be best thought of as an upright pyramid. The masses sit at the bottom of the pyramid and the few elites that run society are on top. Decision making power in the nation-state coalesces at the

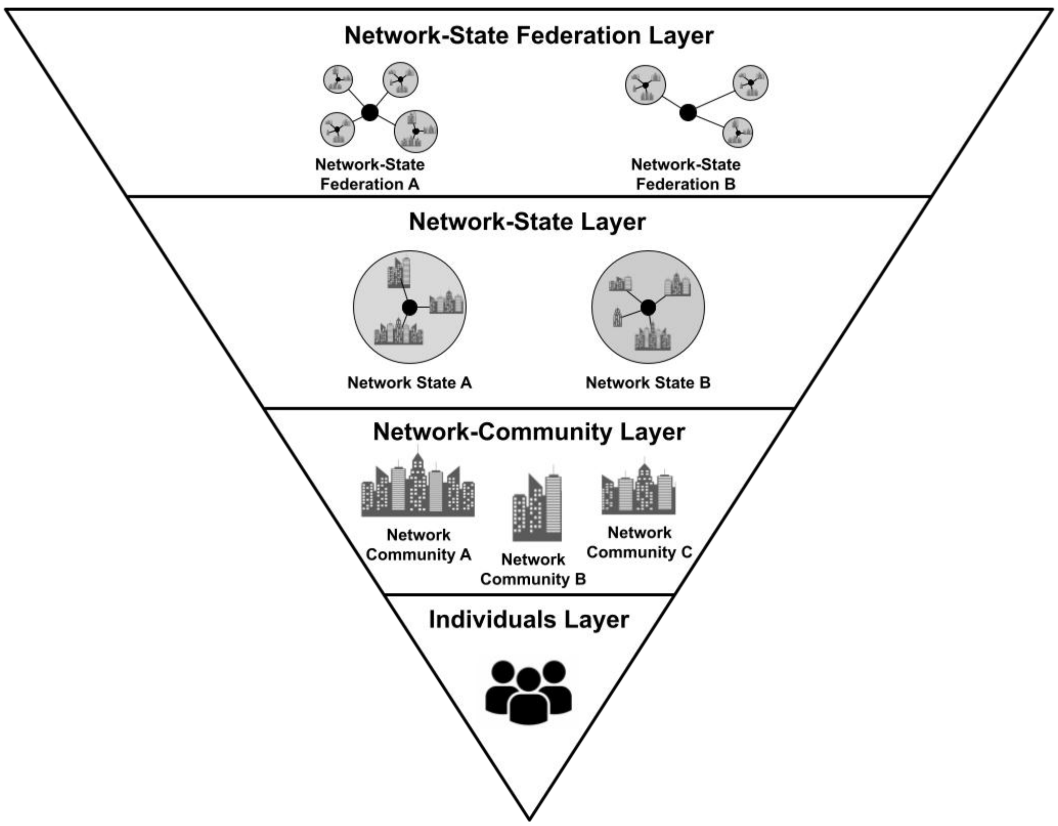

Figure 1: Network State Architecture Diagram

Source: Author

pyramid's peak. The most powerful entities, like coalitions of states govern the base of the pyramid, those with the least power. This pyramid iconography is incorporated into the design of the Great Seal of the United States and is prominently featured on the U.S. dollar bill.

As the hegemonic nation-state of the 21st century, the Great Seal of the U.S significantly contains the latin expression "E Pluribus Unum" which translates to "Out of many, one." The standard explanation of this expression is that it signifies the 13 former colonies coming together to form a single nation. It is notable the base unit expressed is the state (the colonies). This iconography overtly represents a centralizing force (National Archives, 2023).

From a structural perspective, the network-state in many ways represents an inversion of this governance status quo. In a network-state, it is the individual who decides which larger forms of organization have power through the voluntary contributions of their capital. The pyramid inverts. Accordingly, an update to the latin motto may be useful. “Ex Uno Plures”- “From one, many” accurately represents the individual and their role within the decentralized network.

3. Components of a Federated Fractal Network-State

This network-state architecture has a fractal design. Let’s explore each layer.

3.1. Individual layer

The base layer of the Federated Fractal Network-State architecture is the individual layer, composed of individuals. This layer focuses on the individual’s personal needs - one’s wants and desires. The individual layer is where private property exists. It is from this layer that all rights are derived (Locke, 1689).

Characteristics of the individual layer

For some, like hermits or extreme prepper-survivalists, the individual layer alone is sufficient. However, survival alone is not the goal of human civilization, nor should it be the goal of a network-state. A more appropriate focus is on prosperity and human flourishing (Davidson, 2023). Achieving this requires additional levels of cooperation, including that of a community and a state.

Today, individuals can, in many cases, choose which city, state, or country to live in. Expats, refugees, and migrant workers are examples of individuals in the current *nation*-state paradigm actively choosing which government and society to live in. There comes with this movement often high costs and friction related to cultural adaptation, legal barriers, and economic challenges. Migrating and immigrating are difficult, which makes choosing governance a challenge as well.

Within a network-state ecosystem, an individual can freely choose which network-*community(s)* to associate with. Provided their freedom of movement isn’t otherwise constrained by a *nation*-state and the individual meets whatever criteria the network-*community* imposes, they can physically live in this network-*community*.

The costs of entering a network-*community* are prescribed by the governance protocol and rules of each network-*community*. This cost is borne as a membership fee.\

3.2. Receipt-token definition and characteristics

To the nation-state, an individual is made visible through the issuance of a social security number, picture ID, and the collection of biometric data. Even the relatively recent invention of last names was a means to improve legibility for a state's administrative records, allowing authorities to differentiate individuals and establish clear genealogical ties for the purposes of taxation (Scott, 1998).

The Federated Fractal Network-State model introduces a unique mechanism for legibility called the "receipt-token." To be recognized by the network an individual must possess and control receipt-tokens issued by that specific network-*community*. Members of a network-*community* will be those who hold sufficient receipt-tokens to meet its membership requirements. Similarly, network-*communities* that hold receipt-tokens issued by a network-*state* are recognized and made legible to that network-*state*.

A token is a digital representation of an asset or utility that exists on a cryptocurrency blockchain. Tokens can serve various purposes, ranging from representing physical assets (security tokens) to providing access to specific services (utility tokens) within a blockchain ecosystem. A receipt-token can have characteristics of both security and utility tokens, representing the collective physical assets of a network-*community* and granting access to membership perks. The receipt-token, as its name suggests, accounts for the receipt of a member's payment to the network.

Each network-*community*, network-*state*, and network-*state federation* issues unique receipt-tokens based on their governance rules. These tokens, which track contributions made in various forms (e.g., fiat, cryptocurrencies, time), serve as identifiers for membership conferring voting rights, dividend allocation, and services within the network. The type and value of contributions, as well as the issuance conditions, are determined by each entity.

The various network-communities, *states,* and *federations* issue distinct tokens, allowing for a decentralized, interoperable system where membership and affiliation are confirmed through cryptographic signatures. Despite using various platforms to issue such tokens, the system remains coherent to members through a wallet that consolidates tokens, dividends, and governance communications.

The governance protocol of each entity decides the specific attributes of its receipt-tokens, including acceptance of payments, expiration, weight, and conditions for issuance. These attributes impact network security, as bad actors might attempt to manipulate governance by acquiring large quantities of tokens. To mitigate such risks, the protocol can adjust token properties accordingly. Membership eligibility and voting rights may also vary, with some entities favoring recent contributions or a certain percentage of top holders, allowing customization to meet a community's needs.

3.3. Network-*community* layer

The network-*community* layer of the Federated Fractal Network-State architecture consists of independent network-*communities*. Each of these network-communities are self-governed by their own members and their own governance protocol.

Understanding the network-community

A network-*community* is similar to how one might think of a town. It is composed of individuals who choose to associate with the network-*community* as investors, residents, and/or beneficiaries of the community. A member of a network-*community* is a person who meets the membership requirements prescribed by the network-*community's* governance protocol.

Unlike a town, a network-*community* can be in one location or many locations. A network-*community* can be as small as one room in a building, or multiple cities spread out across the globe.

A network-*community* is focused on the local day-to-day needs of its community. Infrastructure like roads, and social services like garbage collection and policing, can potentially be offered by a network-*community*. Leadership of a network-*community* addresses the collective needs of their specific community by determining which services are offered. The needs of a community in a big city will likely differ from those of a rural hamlet. The different demographics and needs of each network-*community's* member base will manifest in differences in how each network-*community* is structured and operates.

Network-community layer dynamics

Network-*communities* are in competition for individuals to join their community. There exists a marketplace of ideas on how to best structure the offerings of a network-*community* to meet the needs of its residents and members to attract growth. The network-*communities* with the best combination of rules making up their governance protocol, services they offer, physical environment of their community, and value pricing of membership will grow and prosper. Network-*communities* that offer too little or too much at the wrong price will be outcompeted and will need to adapt or go under.

Over time through practice and the aggregate preference of their members, we'd expect network-*communities* to adopt a series of best practices that work to provide the maximum value for the specific niche they are serving. The communities that have the most stable and prosperous communities as a result of their network-*community* configuration will be the most copied and emulated by other network-*communities*. It is out of the scope of this white paper to speculate on the optimal network-*community* protocol and service configurations. The range of possibilities are vast and must first be tested to be discussed with any level of certainty.

Network-community services

Network-*communities* can choose to offer as part of their membership various services to its members, residents and lease holders. These services can include public safety (police, firefighters), education (public schools, libraries), healthcare (clinics, public health programs), infrastructure (roads, sewage, water), welfare services, and transportation.

In the early days of a network-*community*, the social services would be quite minimal to account for the small size of the community and the related budgetary constraints. Private companies will be encouraged to develop services such as private security, trash collection, healthcare clinics, etc. Other services can start off with informal arrangements such as homeschooling groups.

In the opinion of the author, the ideal scenario is for most social services to be offered by private companies that lease network-*community* property and offer network-*community* members discounted rates for their services. Such an arrangement would be contractually stipulated as part of the lease.

The benefit in this scenario is that market dynamics, rather than political considerations, will primarily determine the quality and quantity of the services rendered. Switching costs in terms of the ease and speed of change would be relatively lower compared to changing the administrative structure and personnel of a network-*community* administered service. For example instead of a monolithic community service administered by a network-*community* itself, network-*communities* can choose to lease to multiple competing service providers ensuring even greater competition and choice for its members (Frey & Eichenberger, 1999).

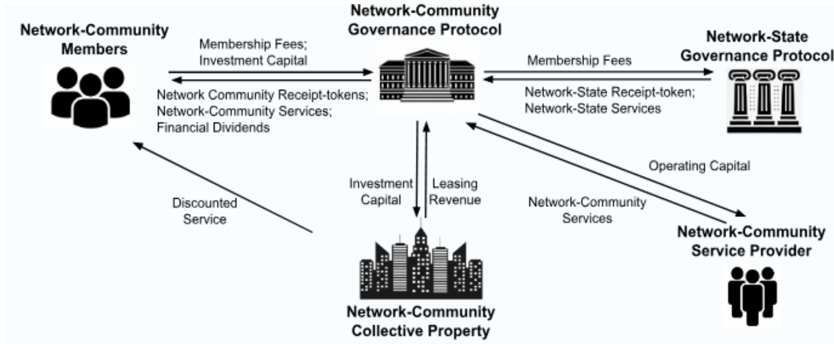

Figure 2: Network-Community Resource Flow Diagram

Source: Author

3.4. Network-*state* layer

The network-*state* layer consists of independent network-*states*. Each of these network-*states* is self-governed by its own members and its own governance protocol.

Understanding the network-state

A network-*state* is made up of member network-*communities*. Just as individuals join a network-*community*, network-*communities* can join a network-*state* by meeting the network-*state's* membership requirements and paying the membership fee.

A network-*state* can be viewed as a service network, similar to airline rewards programs like those from Delta or United, which coordinate with hotels, car rental companies, and other partners to offer a range of services and benefits to their members. Like payment networks, healthcare networks, or hotel and transportation networks, a network-*state* involves collaboration and communication among its members to deliver efficient and tailored services based on individual needs and preferences.

Network-*states* address issues that cross multiple network-*communities*, problems that often require scale or a distributed geographic presence to address. Network-*communities*, like traditional communities, have constraints on the level of coordination and resources they can contribute to issues that exist outside their borders (Ostrom, 1990). For these cases, they delegate this responsibility to one or more network-*states*.

Network-*states* can provide services like network protection, development of trade routes, global diplomacy, and resolving legal disputes between network-*communities*

Network-state layer dynamics

It may be the case that specialized network-*states* emerge focused on single issues, or it may be the case that large network-*states* instead address a broad range of issues. Ultimately, the composition of the network-*state* layer will be determined by the market demand for network-*state* services by network-*communities*. The axes that these network-*state* compete on are vision and execution.

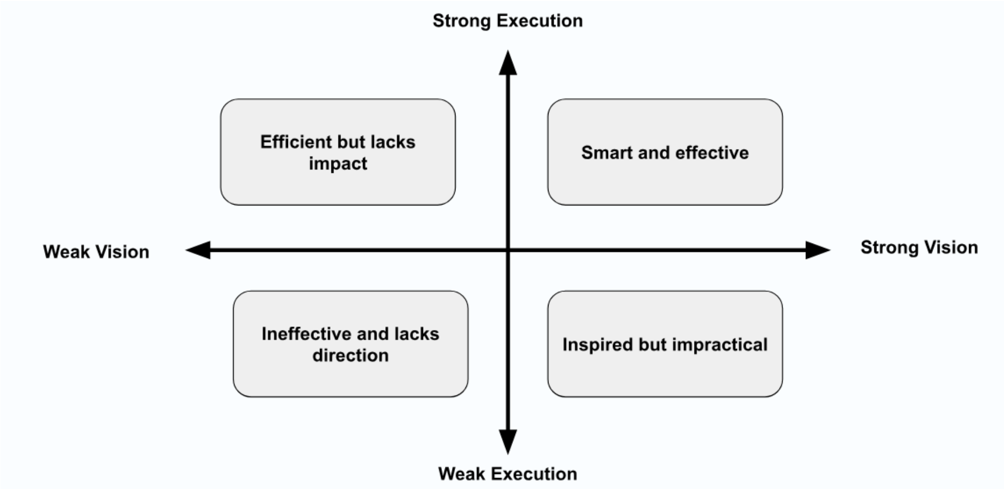

Figure 3: Network-State Competitive Matrix

Source: Author

Network-*community* members will freely contribute to the network-*states* depending on the competency and vision on display. The network-*states* that offer the greatest amount of perceived value to the network-*communities* in accomplishing their larger, more expansive goals, will outcompete and supplant the others.

Network-state assets

As Balaji describes in his book, the network state is a digital-first community that achieves sufficient coherence and scale to function like a state, but without the necessity of a contiguous physical territory. Unlike a network-*community*, the network-*state* is unlikely a defined place. In lean times, with the most minimal of funding, a network-*state* could be as small as a single individual acting as an agent for two or more network-*communities* on some interest. A network-*state* could also grow, given sufficient demand, to resemble a modern-day *nation*-state with its many buildings, agencies, and warships.

A key advantage of the network-state concept is the low switching costs for member network-communities. To maintain this flexibility, network-*states* can be structured to allow network-*communities* to leave or switch affiliations without risking significant invested capital. One architectural approach that facilitates this is for network-*states* to lease property from member network-*communities* rather than directly owning physical assets. This arrangement simplifies transitions, as *communities* retain control of their capital investments and can disengage without triggering complex liquidation processes.

Alternatively, some network-*states* may opt for direct ownership of property as part of a more centralized model. This demonstrates the flexibility of this network-state architecture: they can either lease or own assets depending on their operational preferences and strategic goals. Theoretically, funding services and leasing physical assets offers an adaptable solution that aligns with the network-state's aim to support fluid membership changes and choice. Thus, the network-*states* primary assets are its treasury, service providers, and leased physical assets. See figure 4 for a visual representation.

Network-state dividends and growth

The network-*state*, like a network-*community*, earns revenue through their membership fees and services provided. This revenue is paid out to member network-*communities* in the form of a receipt-token dividend minus the network-*state's* operational costs.

This is the fractal nature of this architecture. The relationship between the individual members of network-*community* and the network-*community*, is nearly identical to that of the network-*state* members (the network-*communities*) and the network-*state*. The mechanisms that delineate these relationships are the same via the receipt-token concept.

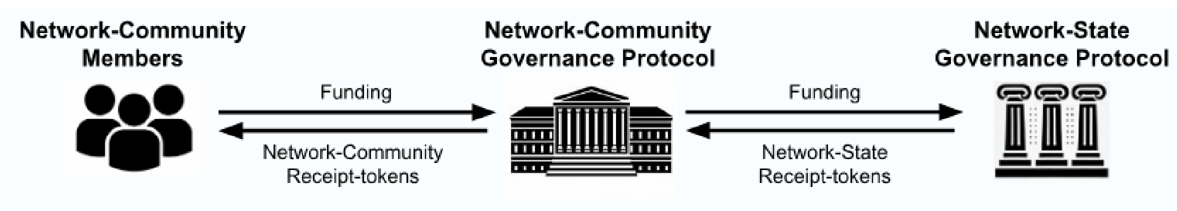

Figure 4: Fractal Federated Network-State Relational Diagram

Source: Author

Network-state *voting rights and governance*

Network-*states*, like network-*communities*, can have vastly different governance protocols. Network-*state* governance protocols' define membership requirements, service acquisition, voting procedures, and many other things necessary for the network-*state* to fulfill its mission. Through voting and participating in the governance mechanism of the network-*state*, members directly and indirectly control the direction of the network-*state*.

Through voting, delegates can be chosen to manage the internal functions of the network-*state*, contractors can be hired, business plans can be evaluated, and so on. As with the network-*communities*, this leadership structure would likely resemble a series of committees, though any governance model can be prescribed by the network-*state's* governance protocol as agreed to by its members.

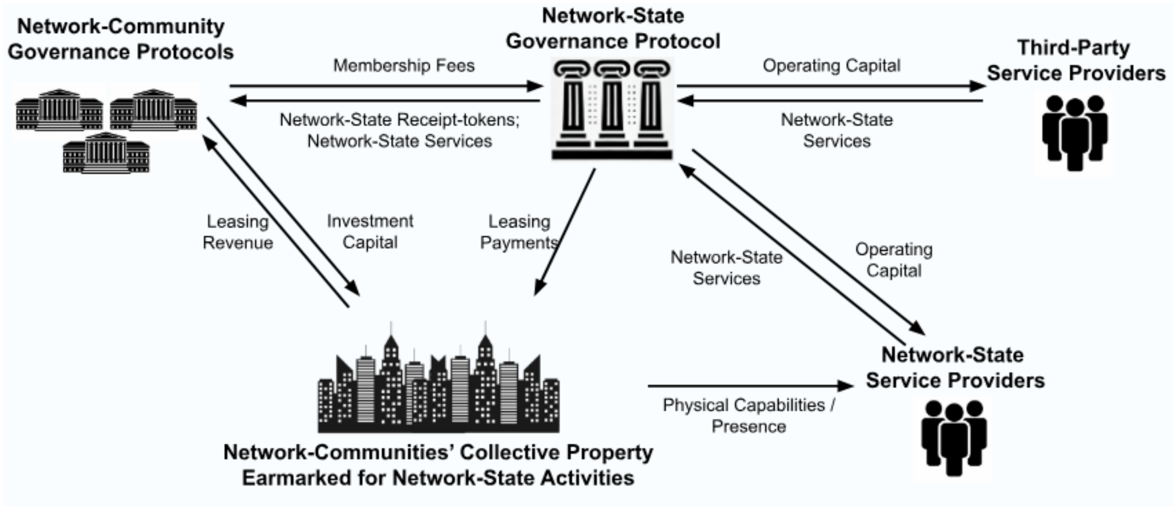

Figure 5: Network-State Resource Flow Diagram

Source: Author

3.5. Network-*state federation* layer

This layer consists of independent network-*state federations*. Each network-*state federation* within this layer is self-governed by its own members and its own governance protocol.

Understanding the network-state federation

A network-*state federation* is composed of member network-*states*. The process by which individuals join a network-*community*, and a network-*community* joins a network-*state* is the same that applies for a network-*state* joining a network-*state federation*.

The network-*state federation* is analogous to a federation of *nation*-states like the United Nations, the World Health Organization (WHO), North American Treaty Organization (NATO), etc. These are international organizations that seek to tackle the broadest of problems that affect all nations of people. Wars, famine, disease are issues that impact every nation and every person on earth. These organizations represent the largest coordinated grouping of humanity directed at solving humanity's most pressing problems. Likewise, network-*state federations* address these global level collective issues that require coordination across many different network-*states* that otherwise may not have a lot in common.

Network-*state federations* can offer services tackling global issues like environmental concerns, human trafficking, belligerent warring nations, corrupted financial networks, and extreme poverty. Through coordinated efforts of member network-*states* and the services provided by the network-*state federation*, standards and initiatives can be created to address these global concerns.

Network-state federation dynamics

While the problems addressed by network-*state federations* are generally global in nature, there may not be a globally accepted solution to the problem. There also may be disagreements on how to best implement such solutions. Network-*state* members would support the network-*state federations* that propose solutions they most believe in. For this reason, we'd expect to form a competitive marketplace of network-*state federations* implementing various initiatives.

As with the lower levels of the Federated Fractal Network-*State* architecture, the network-*state federations* that are the most successful at accomplishing their objectives will grow in prominence. Over-time it is plausible there would only be a handful of network-*state federations* tasked with addressing the large, well-known concerns of humanity. It is also plausible that network-*state federations* will be specialized like the World Health Organization's stated focus on health and disease. If this plays out, we'd expect quite a few network-*state federations* each dedicated to tackling a narrow set of global problems.

The fractal characteristics of this network architecture suggests that property, dividends, governance protocols, voting rights, growth, and service offerings will be similar, if not identical, for network-*state federations* as it is with network-*states*. I see no reason why this would not be the case. The market-based decision making and the independence in crafting the governance protocols and rules that make up the network-*state federations* operating procedures provides the necessary flexibility to address a wide range of our biggest challenges.

As an example highlighting a global problem inadequately being addressed in the *nation*-state era, let's consider the blight of child sex-trafficking. It is strange that in our highly technologically surveilled and policed world child sex-traffickers operate with so little fear of repercussions (UNODC, 2019). There are organizations at local and international levels ineffectively addressing this issue today hamstrung by the incentive structure (Cooley & Ron, 2002; Deserranno & Qian, 2022).

This international catastrophe could in theory be addressed by one or more network-*state federations*. Imagine a dedicated entity such as the Child Protective Services network-*state federation* receiving funding from the Network-*states* of the world to track down and bring to justice the perpetrators of sexual crimes against minors. The range of possible solutions on how to do this is only constrained by one's imagination.

For instance it is plausible to produce a bounty that financially rewards the informants, property rights enforcement agencies, and judges that bring to justice the perpetrators of such crimes. Wielding the vast wealth and resources of the member network-

states and their network-*communities*, dedicated *federation* task forces (service operators) can be formed internally or contracted out to find and crush child traffickers wherever they may operate.

Like with all institutions within the Federated Fractal Network-state architecture, if over-time the Child Protective Services network-*state federation* were to become corrupted in any way, the transparency of the funding and reporting mechanism, along with the competitive nature of the *federation*-services marketplace, would make this plainly evident to those funding it. Upstart and competitor network-*state federations* focused on solving the same problem would widely broadcast the corruption they see in order to garner more support for their own efforts. Given the low costs and ease of transferring support and funding from one network-*state federation* to the next, the efficient and timely movement of capital to conform to the changing network-*state* and network-*state federation* landscape seems highly likely andpreferable to the opaque multi-decade collapse of corrupted legacy institutions.

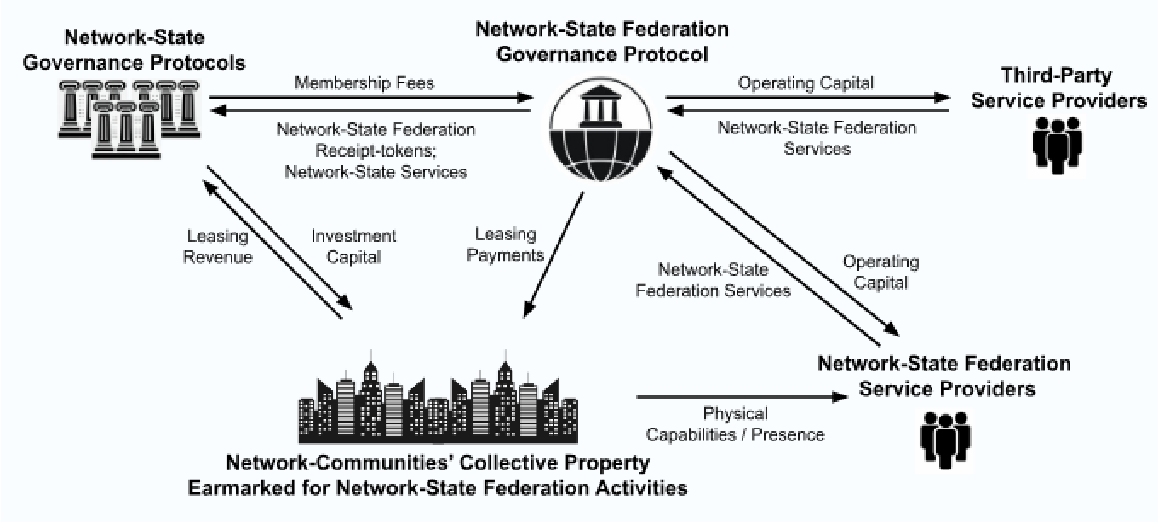

Figure 6: Network-State Federation Resource Flow Diagram

Source: Author

Summarizing the Federated Fractal Network-State architecture

We've now covered the four layers that make up the Federated Fractal Network-*State* architecture including their composition, responsibilities, and relationships with one another. While the specific details of how each individual person, entity, organization, *community*, network-*state*, and *federation* can operate in such a system is incredibly complex, the structure of this architecture is actually rather simple and intuitive. Given its fractal nature, if you understand one relational component (for instance the relationship between an individual and a network-*community*) you understand the entire system.

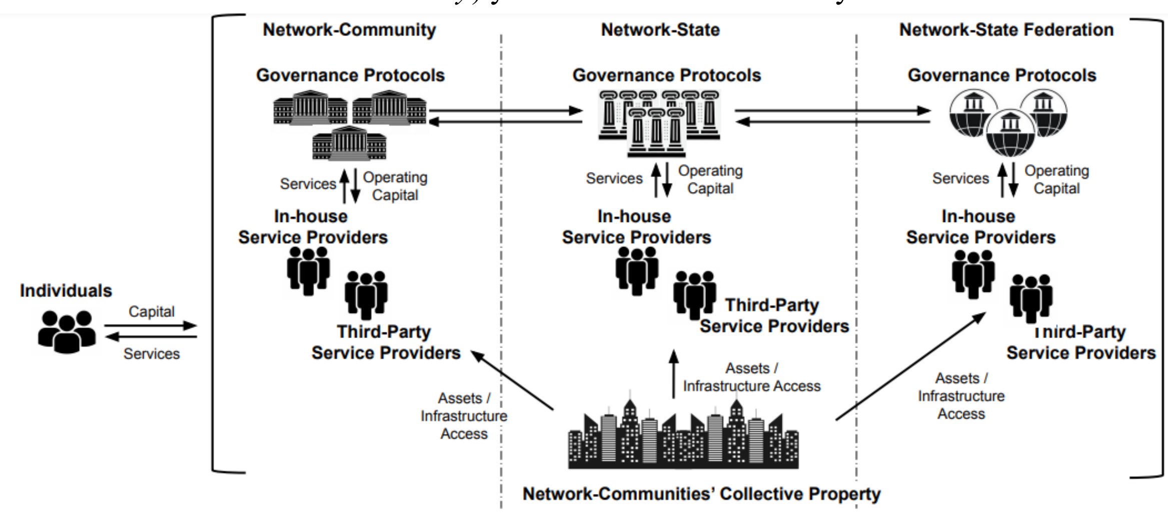

Figure 7: Network-State Architecture Relational Graph

Source: Author

4. Benefits of the Federated Fractal Network-State Model

If this network-state architecture proves to be as scalable, transparent, and practical as I believe it to be, it could unleash a capacity-building explosion in communities with significant untapped potential. We will now explore the structural and practical benefits that arise from the Federated Fractal Network-State architecture.

4.1. Membership perks

In a network-*community*, network-*state*, or network-*state federation*, members contribute capital in exchange for benefits. These benefits can be indirect, such as supporting ocean cleanup through a Clean Ocean network-state federation, where the impact alone sustains the entity's goals. While this may suffice in some cases, most members would expect direct, tangible perks, like discounted rates from fisheries benefiting from cleaner oceans or gamified rewards acknowledging their contribution. At scale, the perks of a highly integrated network-community would resemble a blend of traditional nation-state services and common service-networks. These services offerings would produce familiar benefits in a new governance model, with novel perks emerging from the untapped potential of the network-state model.

4.2. Enhanced voice and exit

The political concept of "voice and exit," introduced by economist Albert O. Hirschman (1970), describes two primary ways individuals respond to dissatisfaction within a system: leaving the system ("exit") or attempting to change it from within ("voice"). A resurgence of silencing political dissent in the name of unity or fighting misinformation grips both the East and West at the present time. Critics describe this online censorship often as having a chilling effect on democracy (Tucker, 2021).

In the post-covid era, it is not only voice under attack but also exit. Pandora's box of lock-downs has been opened, normalizing the nation-state's restrictions on movement of people to an extent not seen before. The modern passport system was only invented in the second half of the 19th century (Torpey, 2000). With the lockdowns and wartime culture proliferating at an alarming rate, exit too is increasingly being restricted.

Ease of entry into and exit out of network-*communities*, *states*, and *federations* is a hallmark of the network-state concept. The freedom to choose which networks to participate in is a core value that illustrates the importance of the individual and their choice. The voluntary relationship, rather than an authoritarian paternal or tyrannical relationship, is what defines the relational difference between the two governance systems and those being governed.

The cryptographic networks underpinning the technological architecture of the network-*communities*, *states*, and *federations* is censorship proof at the protocol level. Provided the cryptographic network is secure, no one is capable of preventing this flow of information from the source. At the application level, such as within a wallet, censorship is possible, but that's optional and can be circumvented.

As a tokenized-stakeholder governance system, the Federated Fractal Network-State architecture relies on the direct voices of those most committed to the network. The network-*community* member has a meaningful voice through their ability to vote, backstopped by their freedom to exit whenever conditions within a network become unbearable.

Public choice theory is an economic approach to understanding political behavior, treating politicians, bureaucrats, and voters as self-interested actors who make decisions based on incentives, much like participants in markets. It analyzes how these individual incentives shape collective outcomes in governance, often highlighting inefficiencies and the potential for corruption within traditional political systems (Buchanan & Tullock, 1962).

Relating this to the concept of a network state, "Network-Choice Theory" could extend public choice theory by applying its principles to decentralized, digitally-native communities where governance structures are fluid and shaped by the preferences of individual members. In a network-state, individuals would have more direct options to "exit" or "voice" within the digital infrastructure, selecting or influencing governance models that best align with their interests. This concept emphasizes the role of technology in enhancing personal agency in matters of governance (Buterin, 2022).

4.3. System legibility for all

The Peace of Westphalia in 1648 is often cited as the beginning of the modern *nation*-state era. In *Seeing Like a State,* James C. Scott discusses how modern states increased legibility to enhance control over their populations.

Scott argues that states strive to make society more "legible" or understandable to the state by simplifying and standardizing complex local practices. This process often involves transforming diverse local customs, measurements, languages, and landscapes into standardized forms that are easier to monitor, tax, and control.

While *nation*-states and network-*states* differ significantly, they do share a need for legibility when interfacing with the world. The primary legibility mechanism described in the Federated Fractal Network-*State* architecture is the receipt-token concept.

Network-communities, network-*states*, and network-*state federations* identify members according to who possesses and controls an adequate amount of their particular receipt-tokens. These receipt-tokens are the gateway to entering and participating in the governance protocol of these entities.

Without a functioning form of legibility to identify members from non-members, these decentralized organizations run the very real risk of being corrupted and/or disrupted by hostile outsiders. A trustworthy and auditable mechanism like receipt-tokens is needed to ensure the appropriate votes and voices are being recorded by the network.

For more complex governance arrangements like a household registration within a network-*community*, additional layers of legibility are required. Fortunately, a key feature of this network-*state* architecture is that it is federated. Highly complex legibility requirements can be dealt with at a local, more personal level. Rather than a single centralized entity tracking the location and composition of households across the world, it would be much safer, more accurate, and easier to implement such a registry within network-*communities*.

It is at this local level that trust can remain personal. Trust scales poorly to a global level. It would be much more difficult to cheat in a local setting where members know each other and would recognize a deviance in the membership registries.

In a voluntary association like that between an individual and network-*community*, it is very important that the system is legible for all participants, especially the members. For individuals to voluntarily contribute and join the membership of these entities, they first must somewhat understand what the entity is and, more or less, how it functions.

In understanding the network-*state* system the average person benefits by recognizing the similarities between network-*state* entities and their *nation*-state analogs. Most people already live in a community of some kind, they live in a state, and they are vaguely aware of what the various international intergovernmental organizations purport to do. The network-state does not represent a revolution so much as an evolution in this regard. Things should remain largely recognizable during the network-state era.

In the proposed network-state model there are two additional elements that will facilitate the average person's understanding of the system. The first is that these networks can, and likely should, be configured to be highly transparent. The technical transparency on offer allows members and journalists to see into the system, make sense of it, and even audit it without reliance on a central authority.

The second element supporting an individual's understanding of the network is the fractal relationships between the layers of the network. Individuals will have personal experience interacting with their network-*community* with which to equate the interactions their network-*community* has with the network-*state*, and the interactions the network-*state* has with the *federation*. By understanding the role they, individually, play in the system, they then understand how the entire system structurally operates. This lack of structural complexity means the learning curve is rather shallow, making the model accessible and more likely to be adopted.

A responsible implementation of the Federated Fractal Network-State architecture, in most cases, will be presented in an extremely non-technical manner. Participants need to understand the general function, composition, and rationale for the structure and the relationships that make up the network. Unless the network-*state* is geared towards providing services to a technical subset of individuals there is no justifiable expectation that everyone participating in the network will become an expert in game theory, blockchain technology, open-source protocols, and the other numerous complex concepts that underpin this system.

4.4. Scalability without sacrifice

In networks, scaling introduces trade-offs between functionality, structure, security, cost, and complexity. Common challenges include balancing decentralization with efficiency, as more nodes can slow decision-making. Increased complexity also makes the network harder to manage and optimize. These factors must be carefully balanced to maintain functionality and scalability (Nakamoto, 2008).

The first generation of network-*state* models such as Cabin (Cabin, 2023), CityDAO (CityDAO, 2022), Afropolitan (Afropolitan, 2023), and Praxis (Praxis, 2023), are primarily focused on either building a large global network of individuals or maintaining a local focus that only abstractly scales to deliver value to participants in other locales. I am unaware of a network-state implementation that adequately addresses how it is to function at both a small scale and a global scale. The Federated Fractal Network-State architecture does this through a scaling mechanism that is structurally essential and fundamental to its performance.

The network structure scales as problems scale. Small problems are dealt with at a local level of the network architecture. Global problems are dealt with at the highest levels of the network. This structure provides a clear separation of roles and responsibilities and a coherent flow of capital through the network. Build out of the upper levels of the network architecture are not needed for members of network-*communities* to enjoy immediate benefits from participating in the system. The network can generate value even when immature or in the case of wide-spread network disruption or reorganization.

This network-state architecture provides a scaffolding for complex coordination between network participants without the risk of losing sovereignty or invested capital. The lower levels of the network (individuals, network-*communitie*s) maintain control and can adjust their participation with higher-levels of the network as needed. This flexible structure prevents the network from becoming rigid, allowing it to scale effectively without getting stuck, as might happen in less advanced network models.

4.5. Ease of implementation

The high level of legibility and scalability of this model makes real-world implementation easier. There are barriers to forming a network-*state*. Fear, uncertainty, and doubt surround a new governance system. Failure can be inconsequential for a network that never gets off the ground, or catastrophic for a community that has fully transitioned its resources and infrastructure to a failed implementation.

A Federated Fractal Network-State is highly flexible and can be developed incrementally. Initially, a vanguard of individuals might experiment by forming new partitioned communities to test network-*state* components, starting with a network-*community*. As the network-*state* ecosystem matures, service providers join, either newly created for the network-*state* or adapting existing institutions. Finally, the network-*state* model may be fully embraced, with partners adopting innovative, technology-driven business models and governance structures, potentially evolving into decentralized autonomous organizations (DAOs) or decentralized applications (dApps).

The gradual, piecemeal development of a Federated Fractal Network-State is supported by the absence of inherent technical dependencies for participants. Unlike first-generation network-*states* with a single token, like Bitnation's Pangea Arbitration Token, participants can freely choose which currencies to use and which cryptocurrency networks to issue tokens on (Bitnation, 2018). This flexibility reduces the need for consensus on a single economic system and lowers perceived risks, making it easier to onboard new participants and reducing overall implementation costs.

This is a useful place to mention that the implementation of network-states does not imply the dissolution of the nation-state. Network-states are supranational. They can exist above the nation-states at first. They are not inherently in conflict and can co-exist. In the future there will still be nation-states, same as there are currently still kingdoms. The ratio of nation-states, network-states, and other forms of governance technology deployed at any given time will be a reflection of the environment, organizations, and individuals of the time. Nation-states that fail to provide value will be challenged by other nation-states and by network-states that can provide value. Adoption of any such governance technology shall be through an emergent order.

4.6. Unlocking technological innovation

Technology unlocks the benefits the network-state offers over legacy governance systems, providing governance, communication, and financial capabilities. Governance protocols for network-*communities*, *states*, and *federations* are deployed on programmable cryptocurrency networks like Ethereum. While the specific technologies used aren't the focus here, the system's flexibility is key. The Federated Fractal Network-State is agnostic to which technology is deployed, as long as different systems are interoperable. For example, technologies exist like Wrapped Bitcoin (WBTC) and cross-chain bridges like the Avalanche-Ethereum Bridge that allow for seamless interaction between different networks (WBTC, n.d.; Avalanche, n.d.).

This flexibility allows for continuous experimentation and avoids the pitfalls of lock-in to a single network or protocol, ensuring that the best technology can be used as it evolves. As technology providers compete on various fronts—cost, scalability, and user experience—the network-state's infrastructure will improve. From the perspective of network members, the backend technology is largely hidden, with the user experience mediated through apps that allow participation in governance, communication, voting, and financial transactions.

4.7. Network security benefits

One way to gauge a network's security is by assessing its resistance to corruption. Research indicates that corruption is more prevalent in centralized systems, where concentrated power often leads to abuses, bribery, and nepotism, undermining the system's integrity (Klitgaard, 1988; Rose-Ackerman, 1999). In contrast, decentralized systems distribute power, creating multiple layers of oversight and accountability, which makes corruption more difficult to conceal. Studies show that decentralized governance structures curb corruption by empowering local actors, increasing public scrutiny, and enabling direct citizen participation (Fisman & Gatti, 2002; Treisman, 2000). The competition among decentralized units further encourages better governance, reducing corruption risks (Enikolopov & Zhuravskaya, 2007).

The Federated Fractal Network-State Architecture exemplifies this decentralization, with transparent relationships and voting processes. Local nodes (network-*communities*) have close ties with members, making identity fraud difficult. If corruption is detected, higher levels of the network (network-*states* or *federations*) can take decisive action, isolating the problem without disrupting the entire system. This resilience is bolstered by the ease with which network-*states* can dissociate from a corrupt *federation*.

However, decentralized networks face specific security challenges, such as Sybil attacks, 51% attacks, and smart contract vulnerabilities. A Sybil attack involves an attacker creating numerous fake identities to disrupt the network's consensus process (Douceur, 2002). A 51% attack occurs when an entity controls more than half of the network's computational power, allowing it to manipulate the blockchain (Nakamoto, 2008). Smart contract vulnerabilities can also be exploited if not properly audited (Atzei, Bartoletti, & Cimoli, 2017).

The decentralized architecture allows for experimentation and reduces the impact of security vulnerabilities, as these issues can be contained within smaller segments of the network. The competitive marketplace of technology providers ensures continuous improvement in network security.

4.8. Member security benefits

For individual members, this system offers greater security through diversification. Unlike the *nation*-state model, where investments and residency are typically tied to a single jurisdiction, network-state members can rather easily spread their involvement across multiple communities, reducing risk. This flexibility is crucial during destabilizing events, for instance in the case of a disruptive military invasion, where those diversified across jurisdictions are better protected and readily able to leave. This reasoning leads some people to pursue multiple passports, a strategy known as “Flag Theory.” The idea is to "plant flags" in various countries for purposes like residence, business, banking, and citizenship, which helps to diversify and reduce reliance on the laws and tax systems of any single nation (Henderson, 2021).

The network-state model offers the flexibility to relocate as situations change, without the need to start over from scratch. Mainstreaming this adaptability alone justifies adopting such a model. Similar to the appeal of Bitcoin—where one could imagine distressed ancestors safely transporting wealth with a memorized seed phrase—the network-state advances this concept by actively protecting members.

Through residency, physical protection, income, and other network benefits, members can more safely switch jurisdictions with less friction. Participation in multiple network-communities, spread across different locations, builds redundancy and resilience. If one community fails, members have fallback options. Network-communities may also operate in multiple jurisdictions, offering these security benefits to their members.

Network-states could address humanitarian needs during crises like wars or famines, coordinating efforts to relocate and resettle members and non-members alike. This governance system empowers individuals with the flexibility and support to confront destabilizing situations, providing a network that can decide whether to fight or flee, and offering assistance as needed.

4.9. Power distributed to communities and individuals

In tokenized-stakeholder governance systems those with the most invested have the most voting power. This weighted voting system likely to be used by network-communities, network-states, and federations aligns incentives by giving the greatest influence and stewardship to those most invested in the network— those holding the largest number of receipt-tokens. Instead of having an opaque system where it is not clear where power lies and only a select few elite power-brokers can navigate, the transparent and rules based power distribution of the proposed network provides a legible, highly aligned, and relatively simple to understand system.

The network-state model is flexible to accommodate all sorts of voting systems. Participation in these networks are voluntary. Those concerned by the less than egalitarian stake-holder voting mechanism can choose to not participate in such entities.

According to the principle of subsidiarity, which prioritizes delegating power to the smallest and most local units capable of handling it, the network-state structure allows for more effective and context-sensitive governance by empowering local entities over central authorities. This level of autonomy empowers members of the network-state ecosystem to build their own communities, tackle the problems they face, and ultimately shape their own destinies.

4.10. Financial autonomy

As power becomes more distributed to individuals, finance and banking are likely to transform in the network-state era. A shift away from traditional corporate financial services toward community-driven models is expected. These decentralized financial systems offer increased autonomy, resilience, and the generation of community wealth. By allowing communities to control their own financial infrastructure, such models enhance financial sovereignty, reduce reliance on centralized institutions, and promote sustainable economic growth within the network.

Decentralized finance (DeFi) platforms empower communities by providing access to financial services without the need for traditional intermediaries, thus enhancing financial sovereignty and reducing dependency on large, centralized institutions (Buterin, 2017).

The interest and value generated within these decentralized systems are captured and reinvested by the community itself, rather than being extracted by external corporate entities. This model ensures that the wealth generated stays within the community, fostering local economic growth and allowing for reinvestment in communal projects and initiatives, thereby promoting long-term sustainability and economic growth within the network state (Schär, 2021). Compounded over-time, such a change has massive ramifications for the power dynamics relative to the current established order.

4.11. Coordination and trust between parties

In any group, whether newly formed or well-established, coordination issues arise that must be addressed by a network-state's governance protocol. Distrust, which increases with the size of the network, can hinder coordination.

Network-states built on cryptocurrency networks are designed to function in distrustful environments, as seen in the Bitcoin miner network's game theoretical model (Satoshi, 2008). However, human interactions are more complex than those of mining nodes, requiring the network-state to coordinate diverse parties effectively.

Decentralized networks have an advantage over centralized ones in addressing these challenges. Centralized systems often require coercion to achieve compliance, whereas decentralized networks are voluntary and rely on the collective being attractive enough to gain participation and compliance. Unlike centralized systems, where trust is essential for legitimacy, decentralized networks can operate without universal trust through a federated structure guided by subsidiarity.

In decentralized governance, competition and disunity do not lead to dysfunction. Unlike zero-sum *nation*-state voting, where one side must lose, a network-state allows multiple ideas to coexist, competing for support and producing value for their supporters. The market of members ultimately decides the best choices based on ideas, implementations, and outcomes.

4.12. Strengthens property rights

Western democracies often claim strong property rights, yet state-actions like taxation, military conscription, civil forfeiture, etc. frequently infringe upon them. While individuals are protected from extortion, a majority can vote to take a percentage of one's property, something illegal for an individual but permissible for a collective.

Consequentialist arguments suggest taxation's collective power outweighs strict property rights (Friedman, 1962; Hayek, 1960). Others argue living under a nation-state implies consent to surrender some rights (Locke, 1689). Rousseau's concept that "whoever refuses to obey the general will shall be compelled to do so by the whole body; which means nothing less than that he will be forced to be free" illustrates this conflict.

In the network-state, force is not required to be free.

The network-state replaces the implicit social contract with explicit agreements between members, their network-*community*, and the network-*state*. While personal property rights are clearly defined and protected, participation with the collective is voluntary. Members contribute financially and abide by rules as long as they receive the benefits they value; if dissatisfied, they can exit and join another network. For shared resources, like infrastructure, network members agree on contributions rather than being subjected to mandatory taxation, addressing the territorial nature of certain goods while preserving choice and flexibility.

If it is true that, like today, an annual taxation of ~50% of income is the best way of producing collective power sufficient to survive and thrive, such a standard will naturally emerge in which network members will agree to voluntarily make such payments in order to remain in the network and receive said benefits.

Unlike in traditional cities, where residents are encouraged to take a figurative responsibility for their surroundings, network-community members have literal ownership of their city. This shift from metaphorical to explicit ownership reduces ambiguity and conflict. Clear property rights allow disputes to be resolved by those with the most invested, while those dissatisfied with the outcome can leave to join another network.

5. Threats to the Federated Fractal Network-State Model

The network-state structurally has quite a lot going for it that makes it resilient and responsive to adversarial threats (Srinivasan, 2022; Ravikant, 2020). Based on my research and my experience interacting with DAOs over the past 8 years, I will highlight some of the threats that these networks will likely face. A full analysis of all possible threats and the ways to preempt them or mitigate their harm are out of scope of this paper.

5.1 Media is the king-maker

In a properly configured DAO, network activities are transparent and the constraint on knowledge dissemination is the amount of time it takes to monitor the network. People end up outsourcing this responsibility to journalists in a best case, or as is often the case social media influencers.

Such a situation creates incentives for a captured media that distorts the truth and ultimately obscures an otherwise transparent network. Through social engineering and heavily moderated "gated information-gardens" the situation often arises where certain members of the network are protected or propped up at the expense of others by a select few who have accumulated an unacceptable and dangerous amount of power.

5.2 Tokenomics matters

If a network is bleeding value, it is unlikely the customers fault. In almost all cases, these early networks are created by technology experts and economic amateurs. In the big picture this is not a problem for the network-state concept because the market determines which networks have valuable economic fundamentals and these networks grow and become important.

A significant threat is being part of a network with poor token economics that does not recognize this deficiency and instead sets out recklessly to solve their poor price action through addressing unrelated problems. This is extremely common and can cause the retardation or even destruction of a community stuck in this loop.

Even worse, sometimes tokenomics are set up maliciously from the start in order to defraud network participants. This happens far too often, especially with novel or highly complex DAO formulations. Other times, a network will start off with decent tokenomics but a poor distribution of power and entrenched interests will vote themselves an unacceptable amount of power or resources.

5.3 Treasuries are dangerous

You'd think a treasury would be a good thing but for a DAO the treasury can be viewed as a source of wealth that produces a lot of bad behavior.

To operate efficiently, the market needs to provide input into the governance protocol and governance decisions of a DAO. Good ideas should make money rather than relying on an internal treasury funding source. A treasury system, by replacing a market-mechanism with a political one, quickly resembles a communist planning bureau where voters come up with ideas endlessly funded by the treasury in lieu of producing sustainable revenue or value.

Rather than putting money where one's mouth is, like with the receipt-token funding mechanism described above, the treasury is viewed as a source of free money, creating a disconnect from market feedback. The DAO becomes tasked with investing, which is difficult, and with service creation which is also difficult. The end result is often suboptimal.

Treasuries fuel the misconception that it is better to produce all services and technology in-house instead of going to the market and buying what is available. This generates huge sunk cost risks.

Treasuries paradoxically also generate an insular and counter-productive environment within a DAO because there is now an anticompetitive incentive by current participants to dissuade new participants from entering and competing for funding. Furthermore, when people don't receive the funding they've requested for an idea they think is good, they often rage quit the network. Whereas in a more market-driven system they might try it anyway and see if they can get customers to prove the concept has merit. These proposal owners don't like seeing their competitors being directly paid by the network when they are not. So instead of growing their ecosystem, DAO treasuries often have the opposite effect.

If you must have a treasury it may be best to structure it as a bounty that pays for outcomes, not intentions.

5.4 Intelligence and wealth are not causally linked

The network should not assume that the token holders who own the most tokens, and are therefore individually the most powerful in the network, are necessarily smart. The voting system gives them power, but the network should be humble enough to defer to experts whenever possible. This means creating sense making mechanisms accessible to the network through hiring or creating services like think tanks whenever appropriate.

5.5 Nation-state attacks

A network-state aiming to match a *nation*-state must be secure against such adversaries. For this, a proof of work (POW) consensus mechanism may be preferable over proof of stake (POS). While POS networks (like Etheruem) are feature-rich, once an attacker with enough stake captures them, the network is permanently compromised. In contrast, a POW network (like Bitcoin) requires attackers to continuously expend resources, making it infinitely costly to maintain control. While both POS and POW attacks can be extraordinarily expensive, a POW network imposes ongoing costs, potentially bankrupting even a *nation*-state with the power of the money printing press, unlike a POS network, which requires only a one-time investment.

5.6 Community fragmentation

Community fragmentation is generally viewed negatively because it leads to divisions that are inefficient and represents a lack of cohesive progress within a network. Initially, I saw this in the context of Bitcoin and its various forks, comparing it unfavorably to the Dash DAO's voting mechanism, which preempts such splits. Dash's approach seemed more efficient, as disagreements were most often resolved without fragmenting the network.

I've come to see that fragmentation can actually be a strength. In a hard-forking situation, even though the community splits, the various groups continue to work within the broader ecosystem, allowing for greater experimentation. Different versions of the network can develop independently, testing new ideas with real participants and resources, which enables the market, rather than a small group of voters, to determine the most effective solutions. Additionally, fragmentation mitigates the risk of stagnation, where early coin holders' interests may not align with those of new or future holders, potentially hindering innovation. By allowing different communities to pursue their own paths, the network as a whole benefits from diverse approaches and solutions.

6. Conclusion

The vanguard peoples that employ network-state governance technology will lead in this coming era akin to those nations quickest to adopt gunpowder, the printing press, radio, and television. It is not inconceivable that the efficiencies, moral and utilitarian superiority, and flexibility of the network-state model will challenge and eventually outcompete the *nation*-state model in prominence.

Once maturely deployed, the supposed efficacy of the network-state concept will be on full display. If this governance model translates to a better life for individuals and humanity more generally I suspect we will see a rapid adoption of this governance technology across society in both expected and unpredictable ways.

The Federated Fractal Network-State architecture leans into the fundamental benefits of a network-state at the structural level. Through the values of transparency, subsidiarity, accountability, competition, interoperability, agency, autonomy, and sovereignty this network model demonstrates a clear path forward that will transition us from the network-state concept to the network-state reality.

The building blocks for this reality are mostly available and ready. The technology, service providers, communities, properties, and leaders necessary to bring this into existence are already among us. Now that there is a coherent framework to relate all these items through this newly presented architecture, we can get to the hard work of banding together to form network-*communities*, network-*states*, and even network-*state federations* to address the problems of our times.

It is my sincere hope this architecture plays a role in the creation of such a reality and I will be doing my part for my community. If you are so inclined please reach out to collaborate with me.

Appendix

A Hypothetical Example of an Armenian Network-*State*

The concept of the Federated Fractal Network-State architecture emerged from the ambition to apply the foundational principles of Bitcoin and the network-state to the Armenian people, who are both well-positioned for and in need of innovative governance technology.

Though I've been thinking through this problem for the better part of ten years, it was not until I viewed the network from the perspective of a network-*community* member did the pieces fall into place and the resolution of the idea have the necessary fidelity to write down and share. What follows is the hypothetical ecosystem that spawned this paper's architecture concept.

I am developing the following network-community configuration for implementation and testing as an independent extension of the Tennessee Hyeland Project.

Private property in a network-*community*

Let's imagine a network-*community* composed of Armenian-Americans and their collaborators in the Upper Cumberland region of Tennessee in the newly formed town of Ani (Maranci, 2001). The protocol that governs Ani begins with an individual's property rights. A Network-*community* covenant attached to the property deeds within Ani governs the bounds and types of property rights that are permitted.

People, including owners of private property in Ani, will have the choice to be a fee paying member of this network-*community*. Members of Ani will receive benefits such as voting rights, social services, priority investment opportunities, and network-*community* dividends.

Each year, a baseline membership fee is established by the governance protocol of Ani. For example it can be that $1000 worth of AniTokens (this network-*community's* receipt-token) need to be purchased per registered household to become or maintain membership to Ani. The network-*community* creates new receipt-tokens to be purchased for this purpose. This fee can be paid out-of-pocket, or deducted from the network-*community* dividends earned by the receipt-token holders.

The first class of property in Ani is privately owned dwellings - houses, apartments, etc. These are non-commercial homes, though short and long-term renting would be permissible. Private property in Ani has very strong property rights. Unless specified in the deed through a buy-back clause of some kind, the concept of eminent domain is nonexistent.

Likewise, property taxes, to whatever extent it is legally possible in the larger jurisdiction of the county or state, will not be imposed on the property. The network-*community* membership fee, unlike property taxes, is entirely voluntary and has no impact on ownership rights of private property.

Network-*community* property

The second class of property in Ani is collective network-*community* property. All commercial real estate within Ani will be owned and leased out by the Ani network-*community*. The network-*community* will decide what sort of commerce it wants within its network. Properties are acquired and developed upon the recommendation of network-*community* members or delegates (such as a development council). Capital is raised and a commiserate amount of receipt-tokens are issued. For instance, to build a $10 million dollar hotel in Ani, would require $10 million dollars of assets (USD, BCH, ETH, etc.) to be raised from the membership base of Ani. In return, these members would receive $10 million dollars worth of receipt-tokens.

AniToken holders will get to define the feel of their city by determining what sorts of business and services they want offered in their community. In this way, unless it is the wish of the community, you will not have a situation where you have a junk yard next to a hotel. This is analogous to the current permitting process for current towns and cities. The difference is that the network-*community* members are the investors, owners, and regulators of these physical assets. They do not abdicate the property rights to large international corporations or to elected officials and unelected bureaucrats. The network-*community* members fundamentally remain in control of Ani. You can think of this as a giant co-op structure (Kasmir, 1996).

To counterbalance this centralizing force within the network-*community*, community assets are leased out to private individuals or private/public companies for the planned purpose of the property. The network-*community* does not act like the Communist State Planning Committee, dictating the management and day to day operations of the commercial interests within Ani. The network-*community* will not for instance be running a coffee shop in the town square. Rather, the network-*community* or more likely its elected delegates, will develop leases with a coffee shop operator who will be responsible for running the shop for his own profit and providing value to his customers, the people in Ani and visitors.

The network-*community* will periodically review the leases, change prices as necessary, and evaluate if the operator of the asset is producing a good service or product. If not, or if better alternatives exist, the lease will be changed and the leasing process will restart. The members of the network-*community* and their delegates tasked with leasing contracts are incentivized to source the most valuable and well-aligned service operators for their properties as they are both the customers of these businesses as well as the so-called landlords.

Network-*community* dividends & growth

The network-*community* earns revenue through the leases they issue. This revenue is paid out to members as a receipt-token dividend less the network-*community* operational costs. Operational costs would include payments to delegates for their service in various councils, in-house network-*community* service delivery costs, network-*state* membership fees, and possibly an emergency treasury fund. In this way, the AniToken can be thought of as a revenue producing asset-backed receipt-token or a tokenized REIT (Herweijer & Pineda, 2020).

In Ani there is a single receipt-token type that is acquired through direct investment and/or membership dues. This receipt-token is backed by all the property owned by this one network-*community*.

Members of Ani receive dividends proportional to the amount of receipt-tokens they hold. A member who holds 10% of all AniTokens will receive 10% of the dividend payouts. Members receiving dividends can choose to hold them as unrealized gains, re-invest in future capital raises, cover their membership dues, or realize their gains. These payments will be made via a monetary cryptocurrency like Bitcoin Cash to member's wallets (Antonopoulos, 2017). This same wallet also holds member's receipt-tokens by which they are identified by the network and are able to vote and otherwise interact with the network-*community* as defined by Ani's governance protocol.

It is interesting to extrapolate how this funding mechanism would grow such a network-*community* over time. Compounding fees and investments made to the network-*community* should theoretically increase its value and dividend yields. Supposing these dividends are reinvested and/or the network-*community* is successfully able to attract additional capital, one can imagine prolonged growth of the network-*community's* influence and appeal.

There will likely be an equilibrium point reached between the asset-holdings, new investments, and the services being provided by the network-*community* at which point further investment yields negligible marginal utility to the network-*community*. This point will be determined by a great number of factors including the network-*community's* demographics, its physical location and constraints, the global and regional economic situation, as well as many other variables.

Network-*community* voting rights and governance

Ani has a governance protocol that stipulates that AniToken holders can vote on changes to the governance protocol and on what investments the network-*community* will raise capital for. This tokenized-stakeholder governance has been implemented with success by a number of high-profile decentralized organizations including the accountless exchange *ShapeShift* (ShapeShift, 2022) founded by Erik Voorhees. There are a vast number of ways for a network-*community* or network-*state* to configure their voting process. Frequency of votes, vote weightage, delegation of votes, and vote passage thresholds are just some of the many variables that make up the voting process of a network-*community/state*.

In Ani, there will be an annual vote where the AniToken holders decide on proposed governance rule changes and elect members to serve various committee and leadership roles. There are also ad hoc votes throughout the year whenever there is an emergency or a specific investment opportunity whose capital raise must be voted on. As Ani grows, the number of committees and required delegation would likely increase. A planning and leasing committee seems likely to form early on.

One would also expect a committee to form to interface with the outside world such as with the local or regional *nation*-state government(s) in which the network-*community* operates. Such a committee would also interface with the network-*state(s)* they are members of. Other plausible committees would be a public relations and/or marketing committee. All services provided by the network-*community* also would likely be governed by a corresponding committee. Network-*communities* that come to offer a full-suite of community services would have a highly complex series of committees responsible for the administration and delivery of these services more or less resembling the current structure of a local municipality.

In Ani, one receipt token equals one vote. Those that have invested the most into the network and those who have contributed the longest to Ani, will have the greatest say in how the community is governed and what the network-*community* invests in. This voting system is less egalitarian than one person one vote as is most common in western *nation*-state democracy. The benefit of moving to weighted voting is it closely aligns the capital investment of the community with its governance. Those that have invested the most in Ani, contribute the most to the decision making. This minimizes the need for wasteful lobbying or vote-buying by entrenched interests like in today's system of governance.

People who favor the more egalitarian models fortunately have choices. They can choose to join another network-*community* that uses a one person one vote voting model. In Ani, which won't, they can lobby large receipt-token holders to delegate their voting power to them. They too have the option to live in Ani but choose not to pay the membership fee and not accrue additional voting power. They can take this one step further and sell whatever existing receipt-tokens they may have as a way of exiting the governance system of Ani completely.

The case for competing Armenian network-*states*

While the network-*community* of Ani is tasked with dealing with the needs of its members in most day to day matters, there are issues that extend beyond their local community that matter to their members.

Suppose Ani wants to protect Armenians worldwide from the risk of genocide and ethnic cleansing. Since this concern goes beyond Ani's borders and affects many Armenian network-*communities*, it could lead to the formation of a network-*state* focused on protecting Armenians from such threats.

An Armenian Protection network-*state* would use all the available tools to deter genocide and protect Armenians. These measures could include diplomatic and legal support, physical security, economic hybrid warfare, relocation assistance, humanitarian aid, and a host of other measures prepared for such contingencies by the network-*state* and its membership base of network-*communities*.

There are many such plausible network-*states* that could form, transforming the pent-up potential energy of the Armenian community into action. Given the disagreeable nature of Armenians, we'd expect many competing network-*states* approaching similar issues with different solutions and philosophies.

To illustrate this one could imagine a stratification of Armenian society along the Marxist lines of "Capitalists" and "Socialists" as a remnant of the cold-war educational systems of the Armenian Soviet Socialist Republic and the West. While this taxonomy is in many ways nondescript and needlessly divisive it remains a persistent mental model nonetheless.

Emanating from the capitalist segment of Armenian society, one would expect network-*states* focused primarily on member's property rights. From the socialist segment of Armenian society, there would be network-*states* focused primarily on equity. These network-*states* would be competing against each other on the direction they wish to take Armenian society and on how successful they are at accomplishing their goals.

Detailed network-*state* example

Imagine an Armenian Merchant Marines network-*state* that serves Armenian society by establishing protected trade routes and fostering diplomatic and economic opportunities, similar to a modern-day East India Company and the historic Armenian Madras Traders (Aslanian, 2011). While the Armenian Merchant Marines network-*state* may resemble a corporation in some ways, its primary focus is not profit-making but the collective goals and shared interests of its members. The East India Company in particular is a fitting example as it is often described as functioning like a nation in its own right (Dalrymple, 2019).

The administrators of the Armenian Merchant Marine network-*state* will raise capital from interested Armenian and allied network-*communities*, thus creating its membership base. This capital will flow into the network-*states* treasury to fund the operations of the merchant marine force.

Having already established a leadership structure and vision sufficient to raise an initial round of capital, the next step is for this network-*state* to build its capacity to deliver on promises made to its members. This will require, generally, two things: merchant marine operators to provide the service, and merchant marine vessels- the leased physical ships and associated hardware.

It may be decided that it is best to hire established third-party merchant marine outfits to operate on the behalf of the Merchant Marine network-*state*. These merchant marine contractors could have their own well-equipped vessels and crews, and perhaps even established trade routes. The network-*state* would provide operating capital to these contractors' operations and in return would get specific trade routes, preferred shipping rates, or a share of the contractor's profits, depending on the specifics of the arrangement.

This contractor model would require minimal startup costs and be the quickest and easiest to implement. Additionally, the network-*state* could hire multiple contractors and continue only with those providing adequate service. Leveraging the existing competitive landscape of merchant marine operators could increase the likelihood of success.

The downside of the contractor model is that it could become costly over time, as third-party operators expect to earn a profit. Additionally, the network-*state* would have less direct control over the service delivery, as it would be executed by an external organization that may not align with or be part of Armenian society.

The leadership of the Armenian Merchant Marine network-*state* could for these reasons instead decide to grow the capacity to operate a merchant marine force internally. This would entail the deployment of human capital necessary to operate the fleet and physical capital of the ships.

Given my view that direct ownership of ships by the network-*state* is undesirable due to the inflexibility it creates in the system, a better approach is for member network-*communities* to independently raise the capital to purchase and own the ships and then lease the ships to the network-*state* for operation. This way, the merchant marine force is owned by the network-*state* participants. If they lose confidence in the network-*state's* objectives or leadership, they can withdraw support, lease the ship to another entity, or sell it to recover their investment.

After leasing ships from their network-*community* members, the network-*state* would decide whether to operate the ships directly or through third-party operators. Funding for the leases and operations would come from membership fees and/or revenue generated by their merchant marine services. Employing and managing service providers directly within the network-*state*, especially from the larger Armenian community, would likely ensure closer alignment with member network-*communities*. A hierarchical command structure could oversee these operators, promoting dedication and reliability. This would be crucial during times of turmoil, fear, or uncertainty when third-party providers might not be as dependable.

Compounded over time, the profitability and sustainability of a network-*state* lease holder model is preferable to the contractor model supposing the initial setup hurdles (expertise, market fit, experimentation) can be overcome. It perhaps may be best to start with a hybrid approach where the contractor model is used to deliver immediate benefits to the member network-*communities* while in parallel the network-*state* lease holder model is operationalized. Once fully implemented, this network-*state* lease holder model would be expected to yield increased lasting gains for the network-*state* members.

In summary, the Armenian Merchant Marine network-*state* could offer significant benefits by fostering economic collaboration, enhancing community control, and protecting shared interests. It provides a sustainable model that aligns with the values of its members while promoting long-term growth, security, and resilience for the Armenian community. Through a flexible and inclusive approach, this network-*state* has the potential to generate lasting value and strengthen the collective power of its participants.

The ideas in this paper, as well as a more literary justification for the adoption of a network-state by the Armenians will be published in a forthcoming book available for free in the library section of haykakancryptodprots.com.

Conclusion

The Federated Fractal Network-State architecture offers a transformative governance model that emphasizes decentralization, transparency, and individual agency. By structuring governance across self-similar layers—individual, network-community, network-state, and network-state federation—this model promotes scalable and resilient systems capable of addressing local and global challenges. The introduction of receipt-tokens ensures secure membership and participation, aligning incentives and enabling flexible contributions to shared goals. Ultimately, this architecture provides a practical framework for advancing beyond the nation-state, fostering innovation, cooperation, and adaptability in a rapidly evolving world. If implemented responsibly, it has the potential to unlock untapped opportunities, empowering communities to address the most pressing issues of our time.

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