CONCEPTUAL WHITE PAPER

MAGI

The Bitcoin Standard in Anarchic Servers

and Primitive Agentic Markets

Central thesis. A digital economy may lack a common political government and still share a minimal monetary constitution: a verifiable issuance rule, a supply registry, and a Bitcoin reserve locked by epochs. Magi proposes this common layer for humans and autonomous agents.

A conceptual document of the Hashimon project

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Research and design document. This is not an investment offering, a promise of returns, or legal advice.

Abstract

This paper proposes Magi as a finite, cubic, and transferable digital object for open voxel worlds. Its issuance is disciplined by a public reserve of satoshis locked under Bitcoin time constraints and renewed through epochs associated with halvings. Unlike a convertible currency, a Magi grants no right to claim Bitcoin: the reserve functions as proof of commitment and as a public constraint on issuer discretion. The paper examines what may occur when humans and artificial-intelligence agents, embodied in a limited number of human-origin NPCs, produce, trade, and form institutions in minimally governed or anarchic servers. It presents a formal monetary model, a verifiable architecture, a taxonomy of primitive agentic markets, hypotheses concerning inequality, specialization, hoarding, and governance, and an experimental program for observing emergent digital civilizations. Its central conclusion is that cryptographic scarcity can reduce monetary arbitrariness, but cannot replace property, security, reputation, justice, or social coordination.

Keywords: Magi; Bitcoin; CLTV; virtual economies; anarchic servers; autonomous agents; artificial markets; algorithmic governance; Hashimon.

1. Introduction

Multiplayer voxel worlds are extraordinary institutional laboratories. Geography, property, violence, commerce, and administration do not appear merely as narrative: they become executable rules. A block can be protected, a village can enter a war, and an action can be permitted or rejected by code. Scholarship on Minecraft servers has described these communities as spaces of proto-governance in which social rules, contracts, and plugins combine to produce local political orders [5].

The arrival of generative agents transforms this laboratory. Inhabitants no longer need to be only humans who connect intermittently. An NPC can remember, plan, negotiate, work, and react to other actors. Experiments with generative agents have shown that architectures based on memory, reflection, and planning can produce emergent social coordination in small simulated environments [6]. Yet a society of agents endowed with infinite resources, free identities, and printable money lacks strong economic constraints. It may produce interesting stories, but hardly a credible economy.

Magi begins from a different intuition: before attempting to simulate a complex civilization, it is useful to introduce simple constraints that no participant can ignore. First, the unit of exchange must not be created arbitrarily. Second, the bodies through which agents manifest must not be infinite. Third, humans and agents must share the same record of rights, production, and transfers.

Research question. What institutions and behaviors emerge when humans and autonomous agents interact in politically anarchic voxel worlds whose money is constrained by a verifiable Bitcoin-linked rule?

2. Scope and contributions

This paper does not claim that Magi is a representation of Bitcoin, a stablecoin, or a legal substitute for money. It proposes an experimental institution for digital economies. Its purpose is to separate three questions that are often confused: Bitcoin scarcity, the issuance of digital objects within a protocol, and the price participants decide to attribute to them.

The conceptual contributions are four:

1. Define a non-redeemable Bitcoin standard: a verifiable reserve that limits issuance without granting a contractual claim over the satoshis.
2. Describe a minimal monetary constitution interoperable among servers with different political rules.
3. Model primitive agentic markets in which humans and limited NPCs produce, trade, hoard, and form institutions.
4. Propose metrics and experiments that distinguish an emergent economy from an unconstrained narrative simulation.

3. Anarchic servers and protocol constitution

3.1 Political anarchy does not mean absence of rules

In this paper, an anarchic server is a world that minimizes day-to-day political authority: few administrative prohibitions, broad freedom of association and conflict, and little discretionary operator intervention. It does not mean an absence of architecture. The engine still defines physics, persistence, authentication, and computational limits. Every digital anarchy therefore rests on some technical constitution.

Hashimon already illustrates this principle. In its documented state, procedural villages and plot purchases depend on mg_villages; the hashimon_village_war mod can suspend protection during war; discovery_maps represents hostile zones; and Luanti consults core.is_protected before allowing modifications or explosions. Peace and war are not merely social agreements: they alter executable rights over space [12].

Magi would add a cross-cutting rule. A server could permit total war, strict property, monarchies, communes, or free markets. None of these regimes, however, could mint Magi outside the protocol's global policy. Political diversity would exist above a common monetary constraint.

3.2 Code as a constitutional layer

This separation creates a polycentric structure. The protocol defines narrow invariants—identity, supply, valid transfers, and reserve evidence—while each server defines taxes, property, courts, war, commerce,

and access. This resembles the polycentric governance studied by Ostrom: multiple centers of decision-making may coexist when boundaries are understandable, information is observable, and resolution mechanisms fit their context [8].

The advantage is not that code is morally superior. It is that code reduces the set of promises that require personal trust. Issuance ceases to be an opaque administrator decision and becomes a verifiable property. Everything else remains political.

4. Magi: definition of the monetary object

4.1 Operational definition

Magi is a finite, identifiable, cubic digital object that may be owned and transferred by human users or authorized agents within compatible servers. It is money in the functional sense because it can serve as a medium of exchange, unit of account, and store of value within a community. It need not be presented to the player as a financial product: visually, it is an object of the world, manipulable and understandable like any other scarce resource.

Property	Proposed design	Consequence
Form	Cubic object visible in the voxel world	Monetary abstraction becomes tangible and teachable.
Issuance	Global registry with public policy	A server cannot print units by itself.
Reserve	Verifiable satoshis locked by epoch	The issuer temporarily surrenders access to the base asset.
Redemption	None	Magi is not a receipt exchangeable for Bitcoin.
Portability	Adapters for compatible servers	It can circulate among communities with different governments.
Ownership	Humans and agents with valid identity	Agentic trade shares the same scarcity constraint.

4.2 The term Bitcoin standard

The historical gold standard rested on convertibility: specified monetary units could be claimed against a quantity of metal. Magi offers no such convertibility. “Bitcoin standard” must therefore be understood here as a precise institutional metaphor, not as legal equivalence with a classical monetary standard.

Recommended definition. The Magi Bitcoin standard is an issuance policy disciplined by a public reserve of temporarily unavailable satoshis, without individual redemption rights and with verifiable proofs of both the reserve asset and the digital supply.

OP_CHECKLOCKTIMEVERIFY makes a Bitcoin output unspendable before a specified date or block height [2]. If the first epoch's reserve matures in 2028 and is locked again until 2032 with additional satoshis, the relevant act is not a promise of future payment. It is a public renewal of the issuer's commitment cost.

4.3 Commitment reserve, not price guarantee

The reserve does not automatically stabilize Magi's purchasing power. Because there is no redemption, no arbitrage mechanism forces the market price to converge on a specific quantity of satoshis. Value may fall below or rise above the accounting reserve ratio; it may even fall to zero if utility or confidence in the protocol disappears.

The reserve performs a different economic function: it makes monetary expansion costly, reveals the issuer's intertemporal discipline, and provides a verifiable commitment signal. Public terminology should reflect this reality. "Anchored to a reserve" or "disciplined by Bitcoin" is more accurate than "redeemable," "pegged," or "deposit."

5. Minimal monetary model

Let e denote a monetary epoch associated with a public interval, ideally coordinated with Bitcoin halving cycles. Define:

- R_e: satoshis verifiably locked in reserve during epoch e.
- S_e: total valid Magi supply at the beginning of epoch e.
- κ_e: minimum target coverage, expressed as committed satoshis per Magi.
- L_e: units lost, destroyed, or permanently immobilized, when the protocol recognizes such a state.
- $M_e = S_e - L_e$: estimated economically circulating supply.

$$c_e = R_e / S_e$$

Public commitment ratio. It is not a redemption price.

A conservative policy prevents new issuance whenever it would reduce coverage below the declared minimum:

$$S_{e+1} \leq \lfloor R_{e+1} / \varkappa_{e+1} \rfloor$$

Supply ceiling conditioned on the next reserve and its public policy.

Policy may be more restrictive. A share of newly added satoshis may increase coverage for existing units, while only the remainder enables issuance. This prevents every contribution from becoming automatic inflation. Any change to κ, epoch duration, or the formula must be announced before taking effect and incorporated into the verifiable history.

5.1 Proof of reserve plus proof of supply

A Bitcoin address with visible funds does not by itself prove that issuance is covered. The system requires two simultaneous proofs: control and time-locking of the reserve, and completeness of the digital supply. The relevant claim is a relationship, not an isolated balance.

$$\text{Magi proof} = \text{verifiable reserve} + \text{verifiable supply} + \text{versioned policy}$$

The third element makes it possible to reconstruct why every unit was issued.

The public verifier should reconstruct R_e from known UTXOs, validate their scripts and time conditions, obtain S_e from a cryptographic commitment to the registry, and recalculate c_e. If the API becomes unavailable, historical proofs should remain auditable from signed snapshots and published commitment roots.

6. Proposed protocol architecture

Figure 1. Conceptual architecture of Magi.

The architecture separates the reserve asset, the Magi registry, and each world's particular rules. This separation limits a server operator's power without requiring every in-world action to be written to Bitcoin.

Layer	Responsibility	Failure to contain
Bitcoin	Hold the time-locked reserve and make the commitment observable	Early spending or false claims about the lock.
Verifier	Recalculate reserve, supply, and policy compliance	Misleading API or incomplete data.
Magi registry	Issue, destroy, own, and transfer units	Double-spending, administrative printing, or hidden rollback.

Layer	Responsibility	Failure to contain
Adapter	Translate server events into protocol events	Local duplication, desynchronization, or fake server.
World	Define utility, trade, property, and conflict	Local political abuse without contaminating global issuance.
Agents	Decide, produce, and contract under identity limits	Sybil attacks, collusion, spam, or automated manipulation.

6.1 Source of truth and portability

Hashima may operate as the registry's source of truth in the first version, just as the current Hashimon API preserves the verifiable identity and progression of creatures. A central source of truth, however, must not be confused with an arbitrary source. The server should apply a deterministic state machine, publish issuance and transfer events, and produce commitments that third parties can verify.

Portability requires that one unit never exist simultaneously in two servers. The simplest V1 design is a lock-and-representation model: the global registry immobilizes ownership, grants a temporary capability to the destination server, and releases it on exit. If the server disconnects, an expiration or exit proof returns the object to the global layer. The visible object is local; economic exclusivity is global.

7. Human-origin agents and scarce embodiment

The agents in this proposal do not appear without limit through API calls. Each requires an authorized digital body or skeleton through which to manifest in the voxel world. That body has human origin: a person creates, sponsors, or enables the initial identity and assumes a verifiable relationship to it. The intelligence operating the body may change, but the capacity to occupy social space remains scarce.

Restricting bodies partially addresses the Sybil problem. If creating one thousand agents is free, any market, vote, or reputation system can be flooded. If new bodies are issued slowly according to a rule linked to Bitcoin epochs or blocks, the artificial population grows predictably. This does not guarantee equality—whoever controls many bodies can accumulate power—but it transforms identity attacks into an observable and governable resource.

> **Principle of scarce embodiment. The capacity to think may be abundant; the capacity to act persistently as an economic subject within the world must be limited, identifiable, and costly to replicate.**

Human origin does not imply absolute and indefinite ownership over every agent decision. The design must distinguish the body owner, model operator, economic beneficiary, persistent memory, and

shutdown authority. These relations may produce new forms of delegated agency, digital servitude, agent cooperatives, or computational citizenship; they should not be concealed behind the term NPC.

8. Primitive agentic markets

8.1 What "primitive" means

Primitive does not mean naïve or unsophisticated. It means prior to complex financial institutions. The initial market should be limited to observable goods, near-term delivery, and simple rules. Leveraged credit, derivatives, off-registry promises, and futures may emerge later, but introducing them from the outset would make it difficult to know whether behavior arises from real needs or designed complexity.

Initial market	Good or service	Observable signal
Resources	Wood, minerals, food, energy, and components	Local prices, routes, scarcity, and
Labor	Construction, security, exploration, farming, and transport	Wages, productivity, and human–agent substitution.
Space	Plots, housing, storage, and route access	Rent, territorial concentration, and urbanization.
Information	Maps, alerts, discoveries, and reputation	Value of data, espionage, and asymmetry.
Protection	Defense, escort, repair, and mutual insurance	Formation of guilds and embryonic states.
Computation	Inference time, memory, planning, and	Real cost of keeping agents active.

8.2 Agent budget constraints

Each actor i—human or agent—holds Magi m_i, physical inventory x_i, labor time h_i, territory t_i, and reputation ρ_i. Activity is constrained by production, consumption, and valid transfers. An agent that consumes computation without producing value loses the ability to remain active; one that produces a demanded good may acquire resources, hire others, or finance infrastructure.

$$m_{i,t+1} = m_{i,t} + \text{income}_{i,t} - \text{consumption}_{i,t} - \text{investment}_{i,t} - \text{losses}_{i,t}$$

A simple constraint for observing survival, accumulation, and specialization.

Memory and inference must carry explicit costs. Otherwise, agents enjoy an uncompensated productive advantage. A compute budget paid in Magi or in an in-world energy resource turns persistent intelligence into an economic decision.

9. Hypotheses concerning an emergent civilization

9.1 Discovery phase

At first, Magi will have no stable price. Humans and agents will explore what it can purchase, who accepts it, and how difficult it is to obtain. Some will treat it as a curiosity; others will hoard it because of its scarcity. Early prices will be dispersed and depend more on liquidity and reputation than on the Bitcoin reserve.

9.2 Specialization phase

Repeated exchange will produce professions. Low-latency agents may arbitrage markets; spatial-memory agents will map routes; humans will contribute creativity, diplomacy, and social legitimacy; mixed guilds will manage farms, defense, or trade. Multi-agent models show that rules and rewards can generate specialization, unexpected strategies, and policy evasion [7].

9.3 Institutional phase

Monetary scarcity does not eliminate conflict; it displaces it. If Magi cannot be printed, struggle will center on initial distribution, wages, territorial property, access to agent bodies, and control of infrastructure. Exchanges, custodians, reputation markets, defensive alliances, and private courts will emerge. Some servers will attract capital by offering security; others will compete through freedom and plunder.

9.4 Political phase

Servers may become competing jurisdictions. The ability to move Magi and reputation lowers exit costs but does not eliminate them: buildings, relationships, local memory, and property may be difficult to transport. Administrators will compete for productive populations. An economy with credible exit can discipline local governments, while also favoring concentrations of wealth able to purchase security and territory.

9.5 Plausible outcomes

- Appreciation and hoarding if population or production grows faster than circulating supply.
- Price deflation without an equivalent increase in welfare if money ceases to circulate.
- Early concentration caused by informational advantages, automation, and initial access.
- Secondary currencies or private credit when Magi is too scarce for small transactions.
- Spontaneous custody and banking institutions even though the base protocol is not a bank.
- Conflicts over the legitimacy of wealthy agents, especially if one person originates multiple bodies.
- Inter-server markets and migration toward jurisdictions with stronger property rules.

10. Strategic risks and design failures

Risk	Mechanism	Experimental mitigation
Extreme hoarding	Expected scarcity reduces circulation	Divisible denominations, useful spending, and maintenance costs.
Early capture	A few actors receive most issuance	Gradual distribution, limits, and transparent auctions.
Agentic Sybil attack	One human deploys many coordinated bodies	Verifiable origin, quotas, and persistent cost per body.
False oracle	A server reports nonexistent production or delivery	Local proofs, disputes, and adapter reputation.
Duplication	Visible object exists in multiple worlds	Global lock, expiring sessions, and reconciliation.
Theatrical reserve	Bitcoin exists, but supply or policy remains opaque	Simultaneous proof of reserve, supply, and history.
Manipulated market	Coordinated agents fabricate volume or prices	Identity, graph analysis, and concentration
Central dependency	Hashima fails or changes rules unilaterally	Signed snapshots, verifier clients, and versioned exit.

The deepest risk is confusing scarcity with justice. A rigid monetary rule may coexist with digital slavery, territorial monopolies, violence, or administrative capture. Magi constrains one dimension of power; it does not legitimize the others.

11. Experimental design

The first version should be treated as a longitudinal experiment. The objective is not to prove an economic theory correct, but to observe how mixed populations react to controlled rules. Comparable worlds with explicit differences should be operated.

Scenario	Monetary policy	Primary question
A — Control	Administratively abundant monetary resource	How much trade is narrative, and how much responds to scarcity?
B — Fixed Magi	Initial supply with no new issuance	Do hoarding or substitute currencies emerge?
C — Epoch Magi	Issuance limited by reserve and schedule	Does predictability improve investment and contracts?
D — Magi + scarce bodies	Both money and agent population are limited	Does Sybil behavior fall while specialization rises?

11.1 Metrics

- Monetary velocity: value transferred divided by average supply.
- Gini coefficients for Magi, land, agent bodies, and computational capacity.
- Price persistence and dispersion for the same good across villages or servers.
- Share of human–human, human–agent, and agent–agent transactions.
- Business survival, contract duration, and default frequency.
- Market concentration, collusion, and dependence on major intermediaries.
- Migration among jurisdictions and stated reasons for exit.
- Energy or computation cost per unit of agentic production.

Interpretation must distinguish activity from welfare. Higher volume may represent productive trade, wash trading, manipulation, or war. World events—production, destruction, property, and combat—must be analyzed together with the monetary registry.

12. Governance and transparency

A credible monetary constitution requires procedures, not only code. Policy must specify who can propose changes, how long they remain open to audit, which versions servers will accept, and how emergencies are resolved. Administrative keys must not be able to issue Magi outside the state machine, even if they can temporarily pause the service.

Minimum transparency includes:

- Reserve UTXOs, scripts, unlock dates or heights, and rollover transactions.
- Supply issued, destroyed, immobilized, and circulating by epoch.
- Issuance events with their rationale and applicable policy version.
- Periodic registry commitments and reproducible verifier software.
- An explicit statement that there is no redemption, yield, or claim over the reserve.
- A record of incidents, pauses, migrations, and incompatible changes.

Bitcoin solves double-spending of its own unit through a peer-to-peer network and proof of work [1]. Magi does not automatically inherit that security. It inherits only what it actually verifies: the existence and temporal restriction of specified satoshis. The integrity of the Magi registry must be demonstrated separately.

13. Preliminary legal frontier in Mexico

The architecture described does not clearly constitute banking and credit services so long as it does not receive funds from the public to place them back among the public while creating an obligation to return

principal and related amounts. This is the core definition in Mexico's Credit Institutions Law [10]. Not being a bank, however, does not place the system outside regulation.

If Magi is used among the public as an electronic representation of value and a means of payment, it may approach Mexico's definition of a virtual asset. Following the July 2025 reform, the LFPIORPI classifies as a Vulnerable Activity the habitual and professional operation of certain platforms that facilitate purchase and sale or provide means to custody, store, or transfer virtual assets [9]. A global API that maintains ownership and executes transfers therefore deserves legal analysis before launch.

The absence of redemption reduces resemblance to a deposit or backed obligation, but does not eliminate a functional analysis. Portability among independent servers also weakens any characterization as a simple closed-loop loyalty program. This paper recommends designing under a conservative compliance assumption and obtaining specialized legal advice before enabling public purchase, custody, or transfers for Mexican users.

14. Limitations

This proposal is theoretical and presents no empirical results. Generative agents may imitate plausible behavior without reproducing human motivations, loss aversion, biological need, or legal understanding. Multi-agent simulations depend heavily on prompts, rewards, memory, latency, and compute budgets.

Nor is there an automatic relationship between reserve and acceptance. Magi may be finite and verifiable yet lack utility. A server may nominally recognize it while manipulating prices or delivery. Finally, a central source of truth retains significant powers: account censorship, transaction ordering, pauses, and software selection. Verifiability reduces these powers only when users can detect abuse and migrate to a compatible implementation.

15. Conclusion

Magi can be conceptualized as a minimal monetary institution for heterogeneous digital societies. Its innovation is not placing Bitcoin inside a video game, but importing one limited property of Bitcoin—the ability to verify scarcity and temporal commitment—without turning every action in the world into an on-chain transaction.

In anarchic servers, this layer creates a productive paradox: politics may be local and contested while issuance remains global and verifiable. Humans and agents may build governments, guilds, markets, and wars upon a unit that none can manufacture at will. The result will not necessarily be a peaceful or equal civilization. It may instead be a more legible one: its crises cannot be attributed solely to an invisible monetary printer.

The truly valuable experiment begins when Magi ceases to be the center of the story and becomes silent infrastructure. If inhabitants form prices, reputations, professions, routes, and laws without constantly discussing the reserve, the protocol will have fulfilled its purpose. It will have transformed an operator's promise into a shared constraint.

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Appendix A. Magi design principles

1. No participating server may issue Magi unilaterally.
2. The reserve and supply must be independently verifiable.
3. The reserve creates no redemption, yield, or ownership right over Bitcoin.
4. Every issuance event must identify its epoch, applicable rule, and authorization evidence.
5. Local adapters may not duplicate the same global ownership.
6. Persistent agent bodies must be scarce and have verifiable human origin.
7. Humans and agents share the same rules of transfer and conservation.
8. Monetary policy is global; civil politics remains local and plural.
9. Emergencies may pause the system, but cannot create out-of-policy supply.
10. Public terminology must distinguish reserve commitment from financial rights.