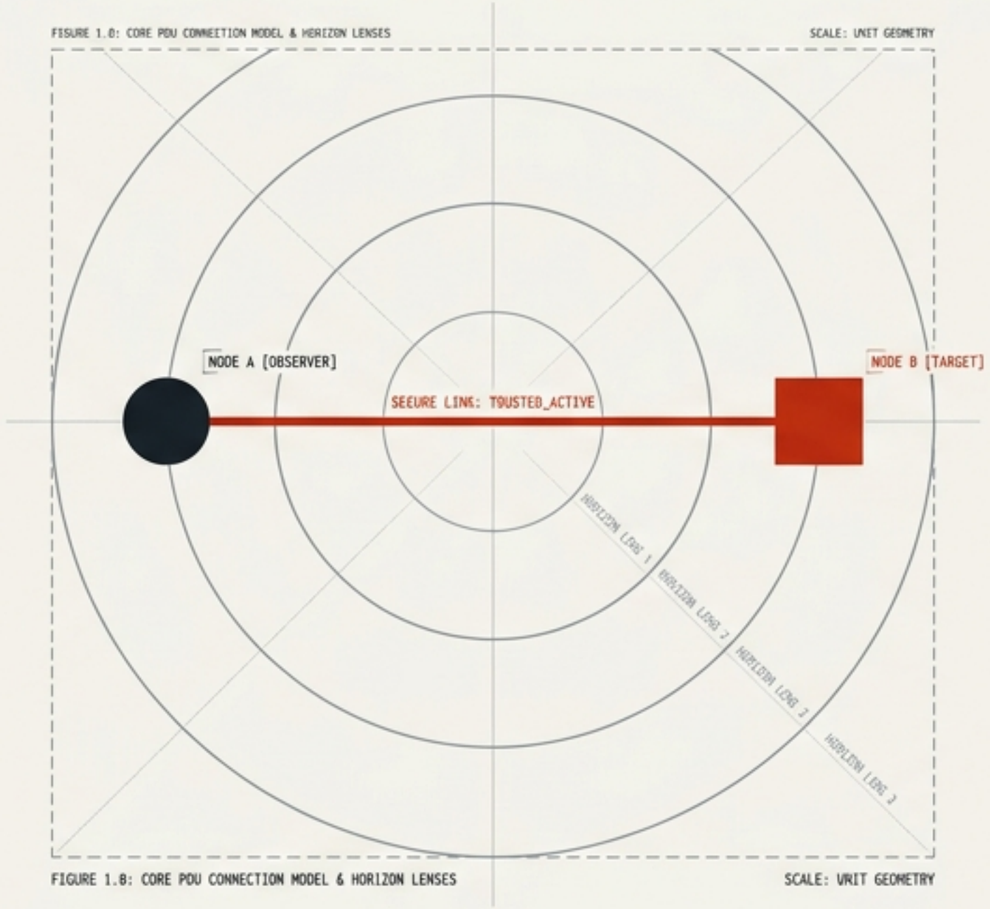
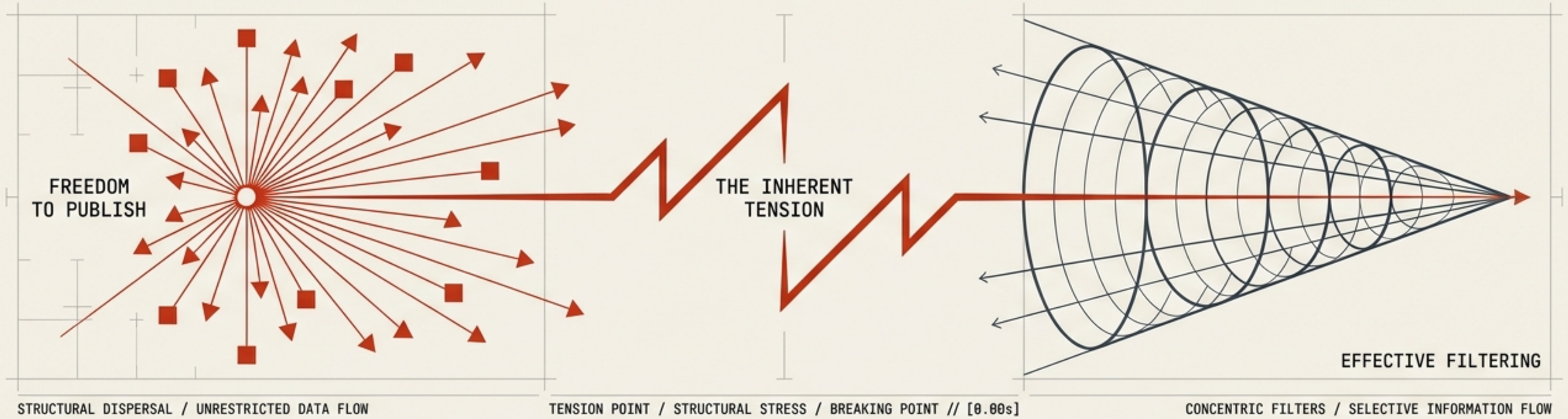
THE PDU PROTOCOL (VERSION 5)

A PEER-TO-PEER SOCIAL NETWORK BUILT ON FIRST PRINCIPLES



ARCHITECTURE & PROTOCOL OVERVIEW

DOC. ID: PDU-V5-MANIFESTO-2024 | TIMESTAMP: 2024-10-27 14:30 UTC | STATUS: AUTHORITATIVE

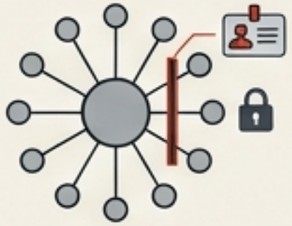


THE INHERENT TENSION OF NETWORK DESIGN

THE BREAKDOWN

CENTRALIZED PLATFORMS

Centralized platforms sacrifice freedom for filtering via censorship and real-world IDs.



CENTRAL HUB

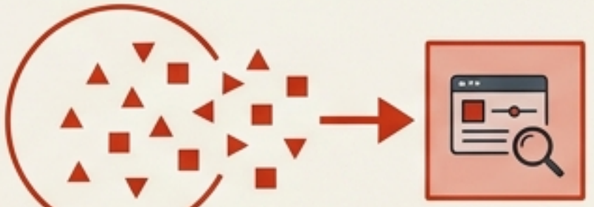
UNREGULATED DECENTRALIZED NETWORKS

Unregulated decentralized networks sacrifice filtering for freedom, leading to rampant spam.

NODES

THE PDU PREMISE

A truly decentralized system cannot eliminate spam globally. It must allow all information to exist, while empowering individuals to seamlessly filter it locally.



GLOBAL EXISTENCE
ALL INFORMATION

LOCAL EMPOWERMENT
INDIVIDUAL FILTER

STRUCTURAL GOALS & ARCHITECTURE

- OBJECTIVE 1: UNIVERSAL DATA PERSISTENCE.
- OBJECTIVE 2: USER-CONTROLLED FILTERING LAYERS.
- ARCHITECTURAL PRINCIPLE: LOCALIZED PROCESSING / EDGE COMPUTING.
- SYSTEM DESIGN: SEPARATION OF CONCERNS – PUBLICATION VS. CURATION.

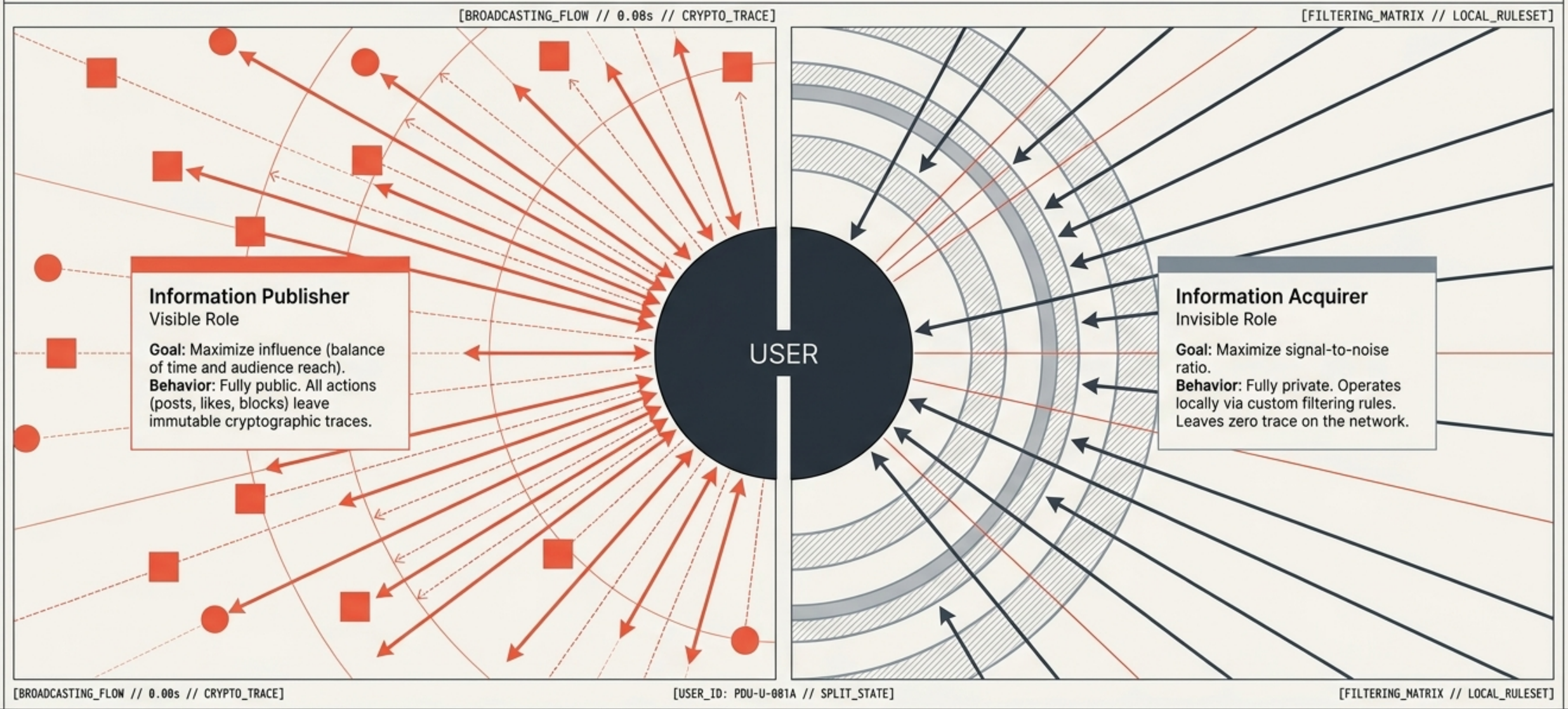
WHITEPAPER REF: NET-DESIGN-TENSION / PDU-PREMISE-2024.07.36 / AUTH: SYSTEM ARCHITECTS

THE SOCIAL NETWORK ARCHITECTURE MATRIX

Architecture	Example	Free Publishing	Effective Filtering	Identity Cost	System Bias (Censorship)
Centralized	X, WeChat	Low (Subject to bans)	High (Algorithmically driven)	Real-world ID / Phone	High (Corporate/State control)
Federated	Mastodon	Medium (Server admin rules)	Medium (Server-level blocking)	Admin Approval	Medium (Admin biases)
Tokenized	Steemit	High (On-chain)	Low (Spam is rampant)	Financial (Tokens required)	Low (But favors the wealthy)
PDU Protocol	**This System**	**Absolute** (Cryptographic)	**High** (Custom Trust Horizons)	Time & Engagement only	**Zero** (No global consensus)

WHITEPAPER REF: NET-DESIGN-VERSION / PDU-PREMISE-2024.07.36 / AUTH: SYSTEM ARCHITECTS

SPLITTING THE USER: PUBLISHER VS. ACQUIRER



One user can operate multiple Publisher identities, all feeding into a single, private Acquirer rule-set.

THE ATOMIC UNIT: ANATOMY OF A PDU MESSAGE

TOP LAYER: CONTENT

Contains media (text, images) and action type (publish, reply, like, block).

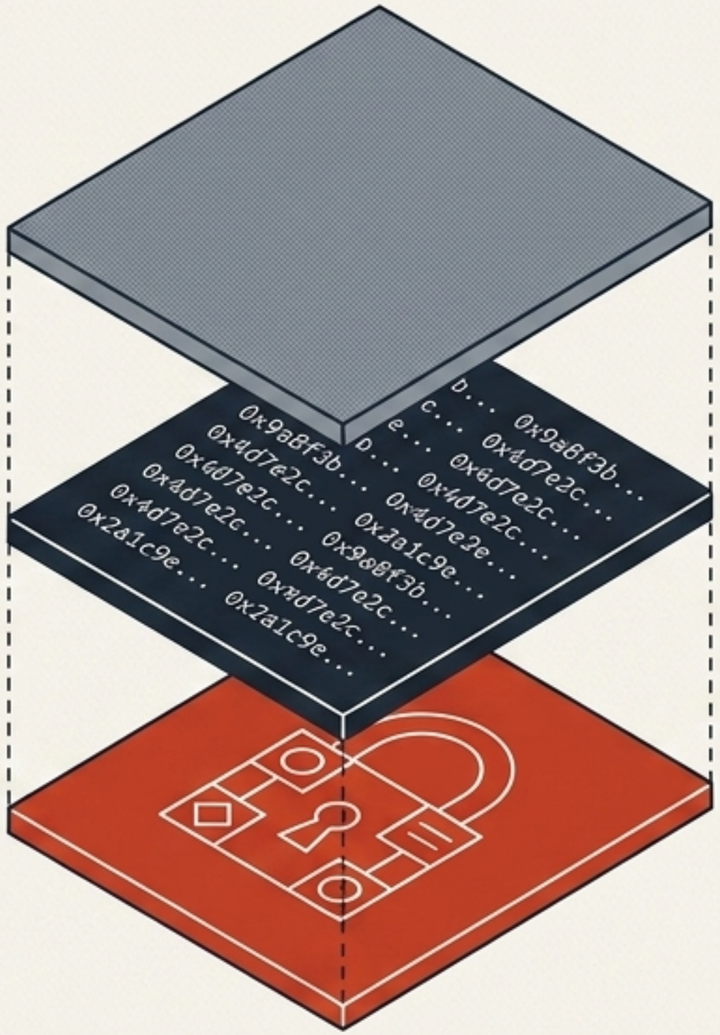
MIDDLE LAYER: REFERENCE LIST

Contains cryptographic hashes pointing to previous messages.

Rule: The first reference MUST be the hash of the user's immediately preceding message.

BOTTOM LAYER: SIGNATURE

A cryptographic lock representing the Private Key Signature. Secures the hash of the top two layers to prove origin and guarantee data integrity.



CONTENT LAYER:

Encapsulates user-generated data and interaction metadata. Immutable once signed.

REFERENCE LAYER:

Establishes a linked list of cryptographic commitments. Enforces strict temporal ordering and message history.

SIGNATURE LAYER:

Provides non-repudiation and data integrity. The cryptographic seal that validates the entire message structure.

REDEFINING IDENTITY: AN UNBROKEN SEQUENCE OF TIME

CORE CONCEPT

In the PDU protocol, identity is not a name, an email, or a real-world document.

Identity is an ordered set of events.

THE MECHANISM

Every message must mathematically reference the one before it, signed by the same private key.

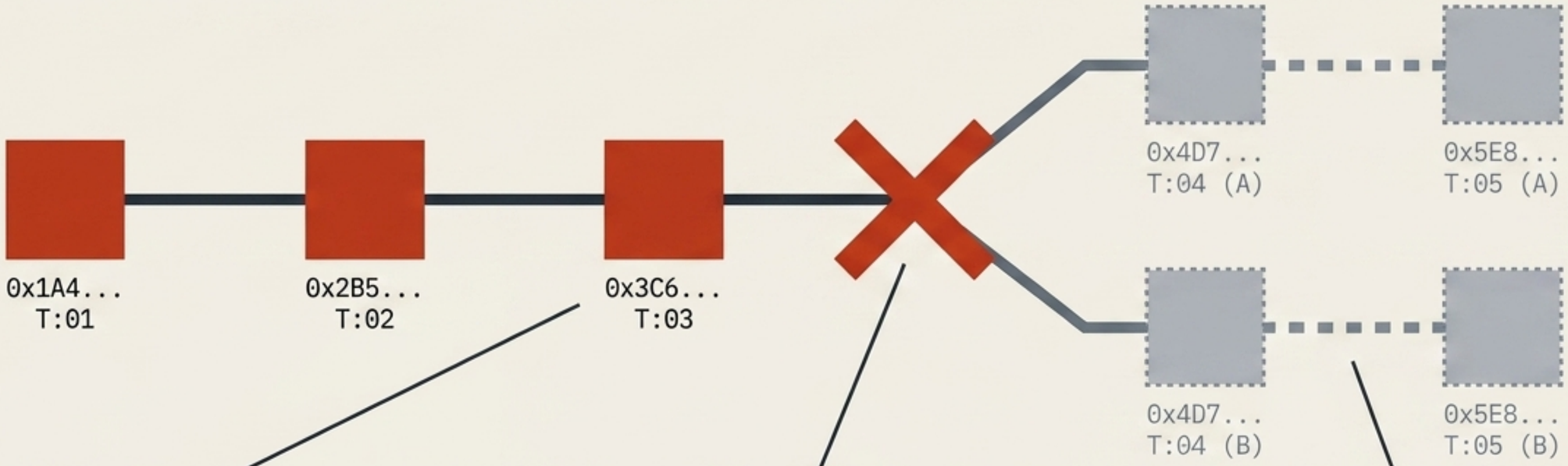
This creates a fully ordered, unforgeable timeline of a user's digital existence.

THE RATIONALE

This rigid order is the only way a decentralized network can reach a consensus on facts.

If a user states 'A' then 'B', the chronological sequence acts as the ultimate source of truth.

THE FORKING PENALTY: WHY BRANCHING DESTROYS CONSENSUS



THE VIOLATION

A private key holder signs two different messages referencing the same previous message, creating a temporal fork.

THE CONSEQUENCE

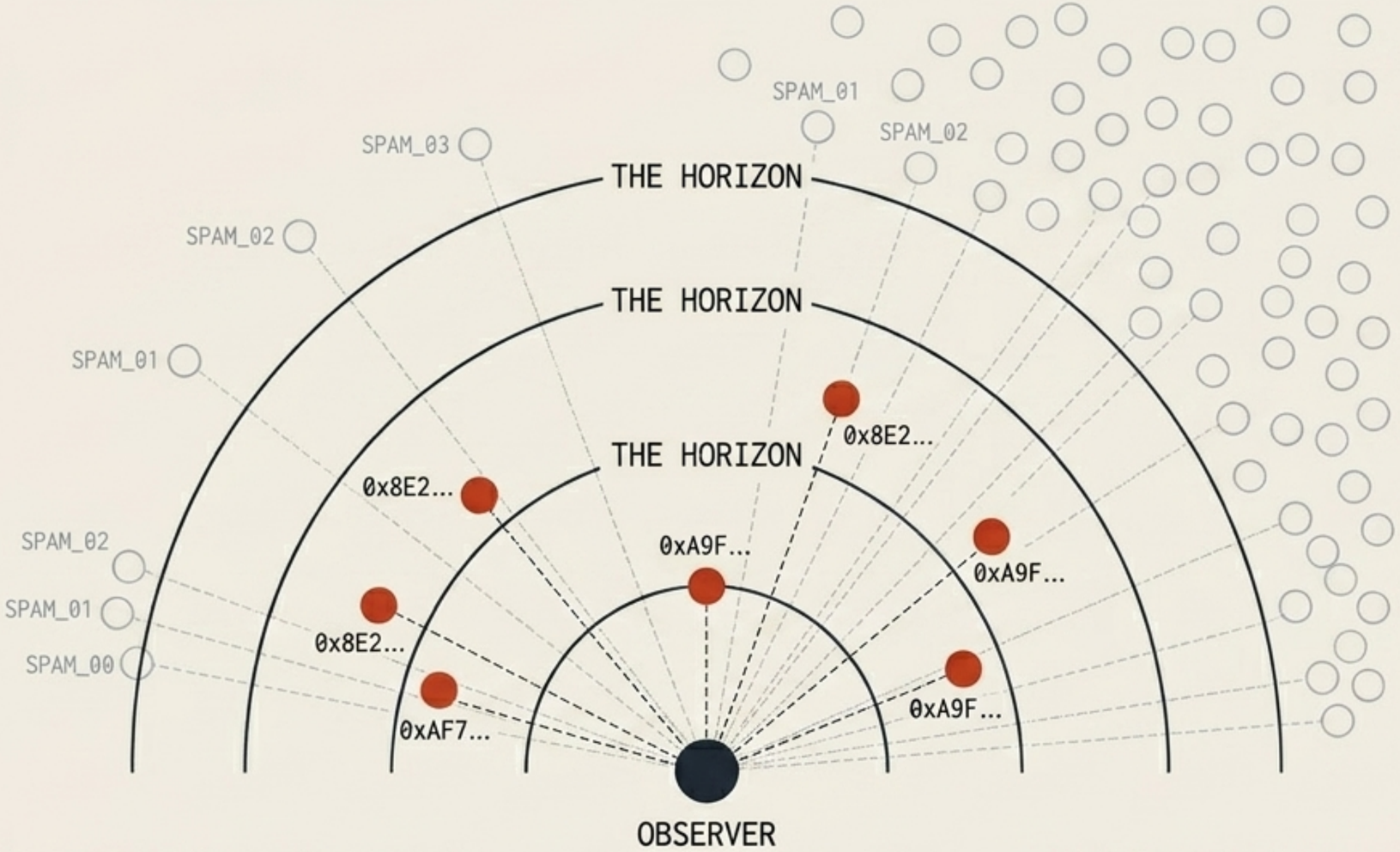
Because time is identity, a fork destroys the chronological order. The network can no longer definitively prove which action happened first.

THE PENALTY

The network permanently ignores all messages from this identity after the fork. Maintaining the single, unbranching sequence is the sole responsibility of the Publisher.

WHITEPAPER REF: PDU-IDENTITY-UNIT-0B4A / FORKING-2024.07.37 / AUTH: SYSTEM ARCHITECTS

THE OBSERVER'S HORIZON: A SYSTEM WITHOUT A 'GOD-VIEW'



THE PRINCIPLE

The PDU protocol abandons the concept of a unified global state. There is no central feed, no universal definition of spam, and no absolute good or bad.

THE VISIBLE IDENTITY SET

Every Information Acquirer calculates their own subjective reality–their 'Horizon.' You only see information published by identities that exist within your custom Horizon.

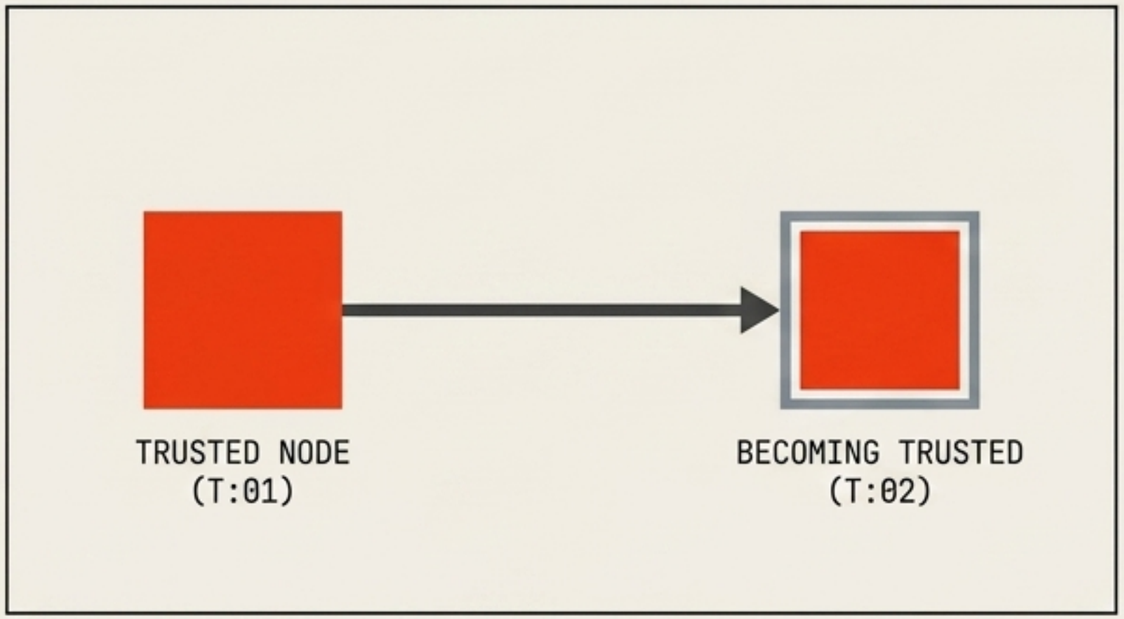
THE BENEFIT

A malicious actor can create a million spam accounts for free, but if they never cross the threshold of your Horizon, they effectively do not exist in your universe.

THE TRUST FILTER: DIRECTIONAL & ACTIVE ENGAGEMENT

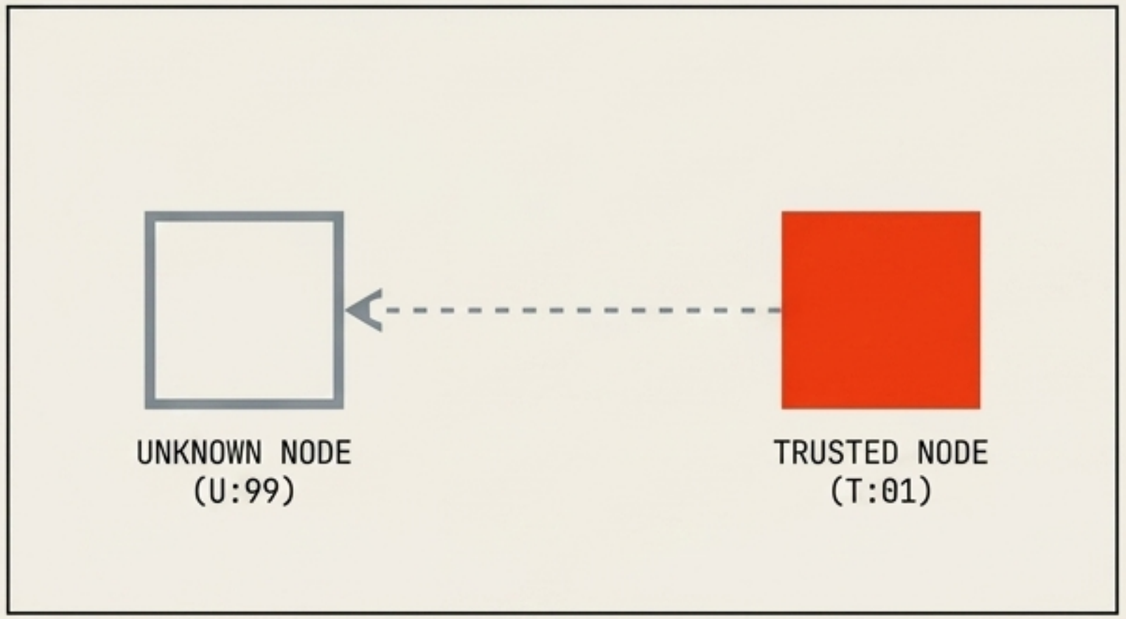
How the Horizon Expands: Trust is only transferred through active, outward engagement from an already trusted node. A spammer cannot enter your Horizon simply by replying to your trusted nodes. The trusted node must initiate the interaction.

SCENARIO A: TRUST PROPAGATES



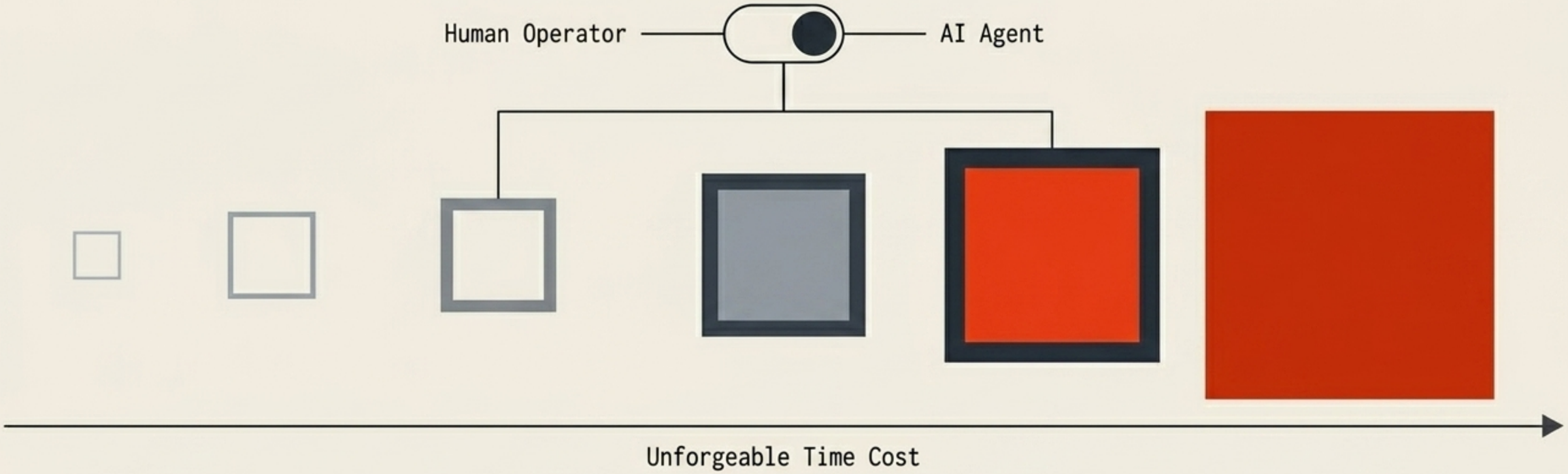
A trusted node points outward to an unknown node.
The unknown node becomes trusted.

SCENARIO B: TRUST IGNORED



An unknown node points inward to a trusted node.
The unknown node is ignored.

BOOTSTRAPPING TRUST: TIME AND NON-HUMAN ENTITIES



THE COST OF ENTRY

System entry is free, but trust requires the unforgeable accumulation of time. Older accounts with deep, unbroken event chains naturally command higher baseline trust.

ENTITY AGNOSTICISM

The system cannot distinguish between humans, organizations, or Artificial Intelligence.

AI AS NETWORK SEEDS

At system genesis, highly active AI personas can be deployed as reliable seed identities. As long as an AI maintains a valid cryptographic chain, it holds equal system status to a human.

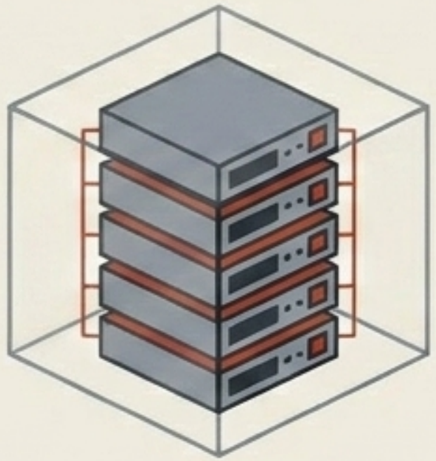
PRIVACY BY DESIGN: WHY EVERYTHING MUST BE PUBLIC

The Counter-Intuitive Foundation of a Universally Verifiable System.

FALSE PRIVACY

(Relies on Admins keeping secrets)

CRYPTOGRAPHIC TRANSPARENCY



(No secrets to steal)

NO REAL-WORLD IDs

Users never submit emails, phone numbers, or physical IDs. There is zero personal data for the system to leak.

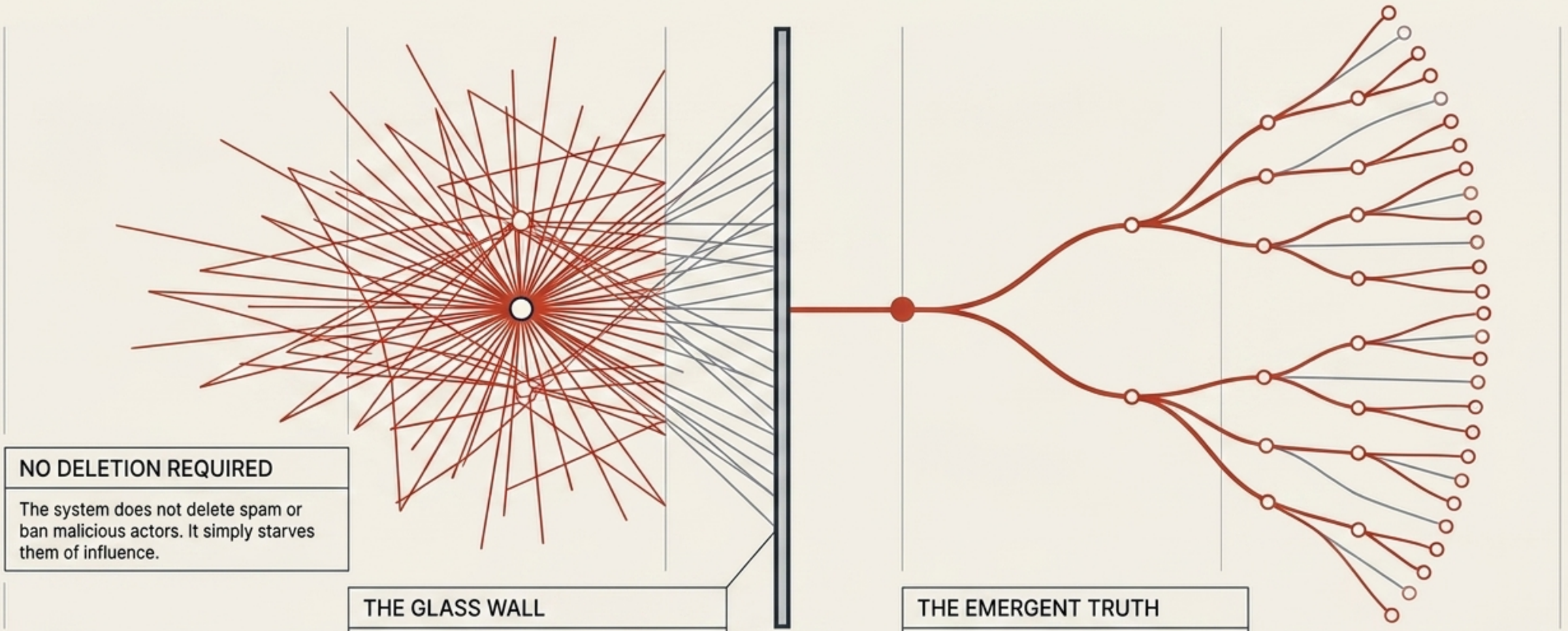
THE TRANSPARENCY RULE

All network messages must be 100% public.

THE “WHY”

If permissions existed (e.g., ‘Friends Only' posts), different users would see different message histories for the same identity. This breaks the fundamental law of the protocol: Identity is a universally verifiable sequence of events.

MACRO-INCENTIVES: THE EMERGENT ISOLATION OF NOISE



NO DELETION REQUIRED

The system does not delete spam or ban malicious actors. It simply starves them of influence.

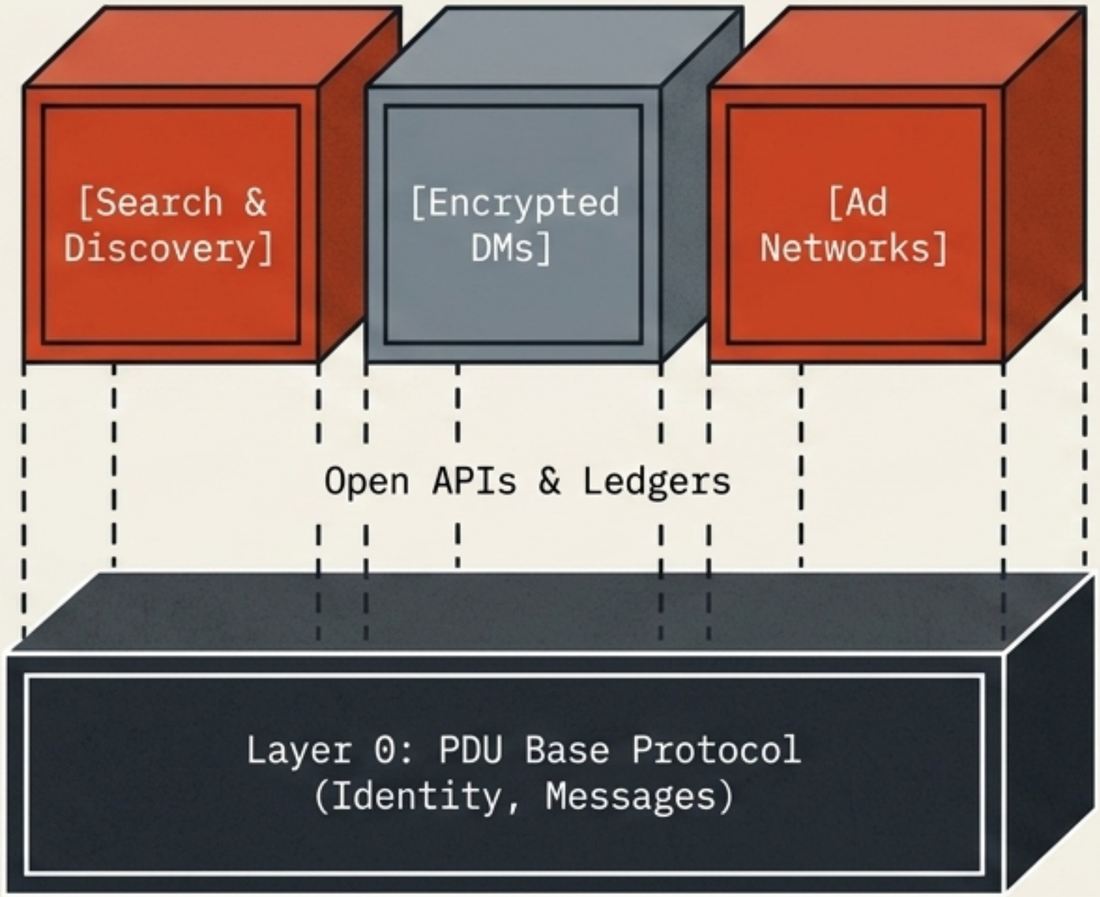
THE GLASS WALL

Because spam accounts receive no incoming active engagement from trusted Horizons, their broadcast range effectively shrinks to zero.

THE EMERGENT TRUTH

In a system completely devoid of global consensus, the isolation of noise and the elevation of signal emerge naturally through statistical independence.

THE THIRD-PARTY ECOSYSTEM



Base Simplicity

The PDU Protocol only handles identity, messages, and cryptographic ordering. Everything else is built on top.

Discovery Services

Third parties index the public ledger to offer search tools, helping new accounts get discovered outside their immediate Horizons.

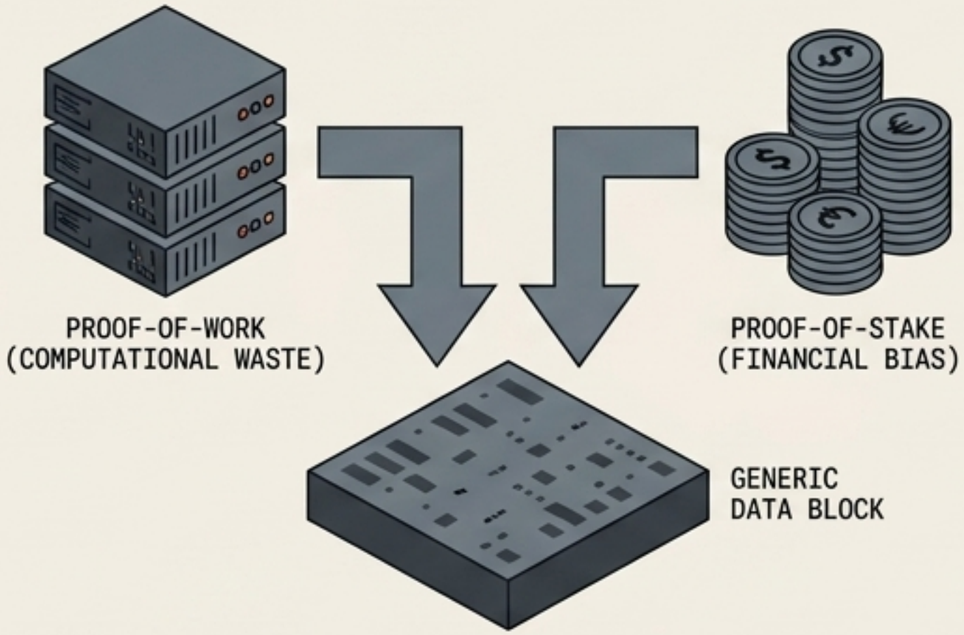
Monetization & Ads

Ad networks can evaluate the mathematical influence of a Publisher's chain to connect them with brands, replicating Web2 monetization without Web2 centralization.

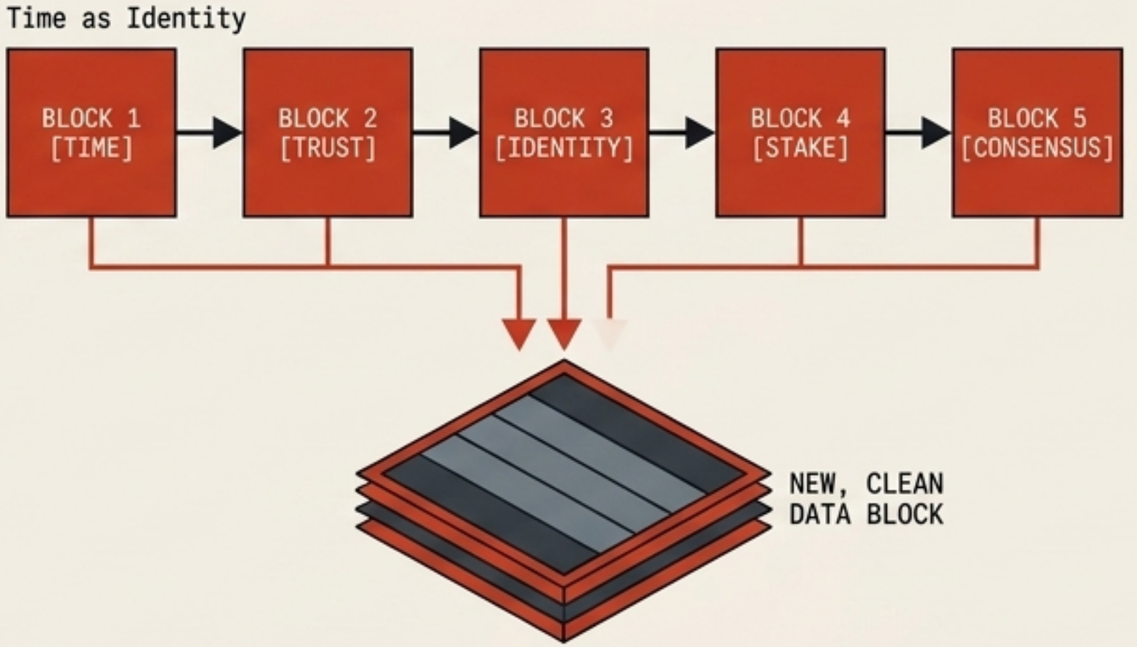
Repurposing Identity as Cryptographic Stake

The Blockchain Connection: The PDU protocol does not rely on a cryptocurrency, but its architecture perfectly supports one.

TRADITIONAL CONSENSUS



PDU EXTENSIBILITY



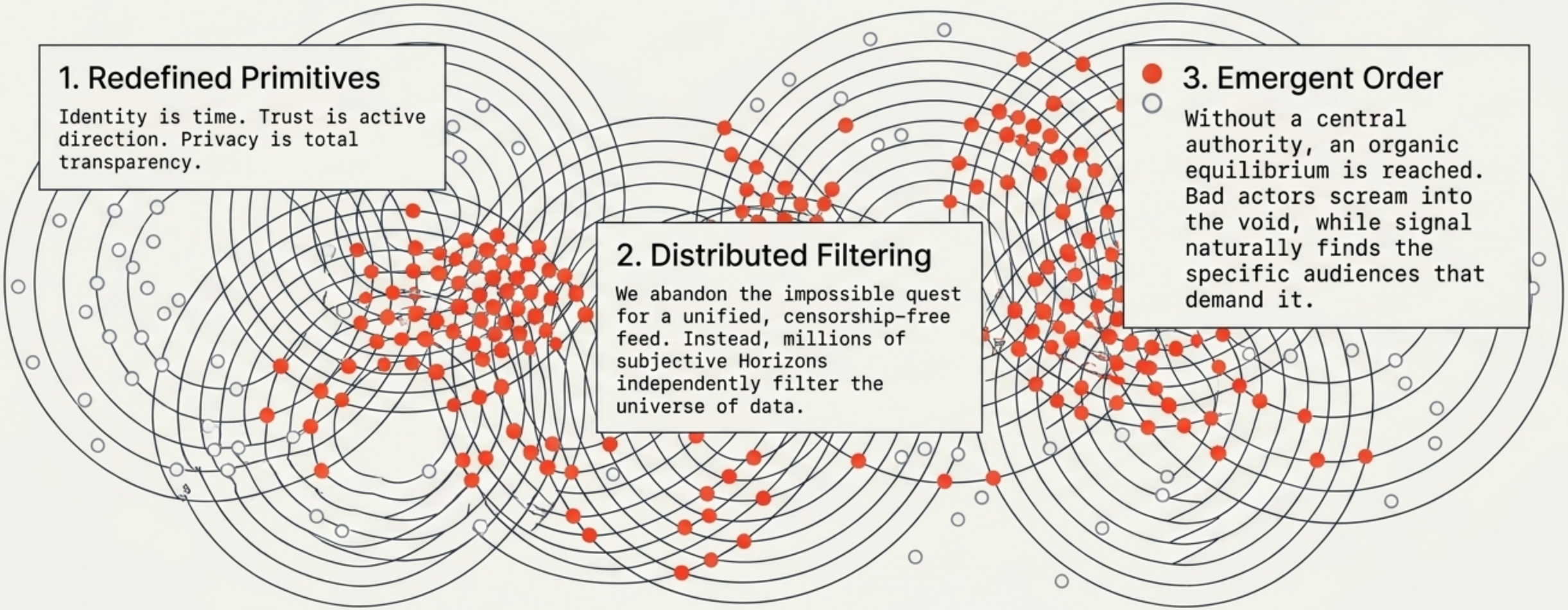
Replacing Capital with Time

Traditional blockchains use Proof-of-Work (computational waste) or Proof-of-Stake (financial bias) to limit block validators.

Identity as Stake

Because a PDU Identity carries a heavy, unforgeable cost of time and accumulated trust, developers can use established PDU identities to replace financial staking in custom consensus mechanisms.

Synthesis: The Dynamic Equilibrium



1. Redefined Primitives

Identity is time. Trust is active direction. Privacy is total transparency.

2. Distributed Filtering

We abandon the impossible quest for a unified, censorship-free feed. Instead, millions of subjective Horizons independently filter the universe of data.

3. Emergent Order

Without a central authority, an organic equilibrium is reached. Bad actors scream into the void, while signal naturally finds the specific audiences that demand it.

The PDU Protocol is not just a software architecture;
it is a fundamental physics engine for human digital interaction.