



Unova

A Web3 Infrastructure
for the Real-World
Economy





TABLE OF CONTENTS

Introduction to Unova	3
Design Philosophy	4
The Problem	6
The Unova Web3 Solution	7
L-1 — L-2 Hybrid Architecture	10
Node Architecture & Network Participation	14
Token Economy - UON	18
Applications, Ecosystem & Market Opportunity	20
Conclusion	24



Introduction to UNOVA

The global economy is increasingly shaped by collaboration across independent organizations. Products, services, and decisions are no longer created within the boundaries of a single company, but emerge from interactions between enterprises, customers, regulators, financial institutions, and automated systems.

As these networks grow more complex, the way data is shared between independent actors becomes a critical challenge. Most existing digital infrastructures were not designed for this reality. They rely on centralized platforms, fragmented system integrations, or trust-based intermediaries. These approaches limit scalability, automation, and long-term interoperability.

Unova is a Web3 infrastructure designed to enable secure and verifiable real-world data distribution across independent organizations, without relying on centralized platforms or trusted intermediaries.

Rather than operating as a platform or application layer, Unova provides the underlying data distribution infrastructure on which multiple industries, applications, and economic models can be built. It enables shared execution and verifiable data flows while allowing each participant to retain full control over its own data and systems.

Unova is an infrastructure, not an application. It is built to support long-term adoption across industries. The sections that follow describe the structural data distribution challenge Unova addresses, the architectural principles behind the network, and how this infrastructure enables decentralized data distribution at scale.



DESIGN PHILOSOPHY

Unova is designed around a set of core principles that reflect the realities of real-world adoption. These principles guide every architectural decision within the network and ensure long-term usability across industries.

Core Design Principles



Data Sovereignty by Design

Organizations retain full ownership and control over their data.



Privacy as a First-Class Concern

Sensitive data is never globally replicated or publicly exposed.



Trust Minimization

Data distribution relies on cryptographic guarantees rather than legal agreements or intermediaries.



Scalable Execution

Complex, multi-party workflows are supported without sacrificing performance.



Horizontal Applicability

The infrastructure is reusable across industries and not tied to a single vertical.



Enterprise ready

Unova is designed to integrate alongside existing systems, not replace them.



Unova as a Distributed State Machine

These principles are realized through Unova's architecture as a distributed state machine.

Rather than using blockchain solely as an immutable ledger, Unova defines how shared states are distributed, validated, and executed across independent actors.

- Smart contracts govern shared logic and execution
- Data remains off-chain under first-party control
- Integrity is anchored on-chain through cryptographic references
- Provenance is verifiable across participants
- Permissions are enforced deterministically
- Execution outcomes are auditable without data exposure

This model enables independent organizations to participate in shared execution without surrendering autonomy, which is a critical requirement for real-world decentralized data distribution.

Designed for Real-World Organizations

Unova is explicitly designed for mass adoption by real-world organizations, not crypto-native environments alone.

This means:

- Predictable costs
- Integration with existing systems
- Privacy by default
- Governance models compatible with enterprise and institutional contexts

Unova does not require organizations to replace their internal systems. Instead, it provides a neutral data distribution layer that connects them.



THE PROBLEM

Modern value creation increasingly happens across networks of independent actors rather than within single organizations. However, the digital infrastructures used to distribute data and execute shared processes are not designed for this reality.

Existing systems fall into two dominant categories - centralized Web2 platforms and crypto-native blockchains - both of which introduce structural limitations when applied to real-world data distribution.

Structural Limitations of Existing Systems

- **Centralized data ownership**
Web2 platforms require participants to submit proprietary data to third-party systems, resulting in loss of data sovereignty
- **Trust-based data distribution**
Execution depends on legal agreements, intermediaries, or manual reconciliation rather than technical guarantees
- **Fragmented execution**
Processes span multiple systems and organizations without a shared execution layer
- **Limited automation and auditability**
Data distribution relies on manual workflows that do not scale and are difficult to verify
- **Public-by-default blockchains**
Most blockchain networks assume on-chain data transparency, which is incompatible with privacy and regulatory requirements
- **Crypto-native design assumptions**
Existing blockchains prioritize token transfers and simple settlement over enterprise-grade execution and usability

The result is a structural gap between centralized platforms that cannot scale trustlessly and blockchains that cannot accommodate real-world data, privacy, and execution requirements.

Unova is designed specifically to bridge this gap.



THE UNOVA WEB3 SOLUTION

Unova introduces a purpose-built Web3 infrastructure that enables decentralized data distribution of real-world data, logic, and execution across independent organizations.

Rather than forcing all data on-chain or centralizing execution within a single platform, Unova introduces a separation of concerns that reflects real-world operational, regulatory, and scalability requirements. This approach allows organizations to participate in shared execution and automation while retaining sovereignty over their own systems.

Unova is designed to function as infrastructure, not as an application or platform. It provides a neutral coordination layer that connects independently operated systems through cryptographically enforced execution.

Separation of Concerns by Design

Unova's architecture deliberately separates responsibilities across multiple layers to support privacy, scalability, and real-world adoption.

- **Layer-1 – Unova-Mainnet (L-1)**

Coordinates execution and shared state through smart contracts.

L1 acts as the deterministic coordination layer where rules, permissions, and execution outcomes are agreed upon by the network.

- **Layer-2 – Privacy-Enabled Distribution Protocol (L-2)**

Off-chain layers handle data storage, applications, APIs, and privacy-sensitive logic.

This ensures that sensitive or high-volume data is never globally replicated while remaining verifiable.

- **Smart contracts**

Enforce rules deterministically and govern cross-organizational execution.

They act as the shared logic that coordinates interactions between independent actors without intermediaries.

- **Organizations**

Retain full control over their data, infrastructure, and nodes.

Each participant decides how data is stored, processed, and shared.

This separation enables decentralized execution without sacrificing privacy, scalability, or control, making Unova suitable for real-world environments rather than purely crypto-native use cases.



An Infrastructure, Not a Platform

Unova is not a platform that aggregates users, data, or applications. It is an infrastructure.

All applications, databases, and APIs are hosted by the users of the network themselves. Unova provides the shared execution and data distribution layer that connects these independently operating systems.

This architectural choice results in:

- No platform lock-in
- Permissionless innovation
- Long-term composability across industries

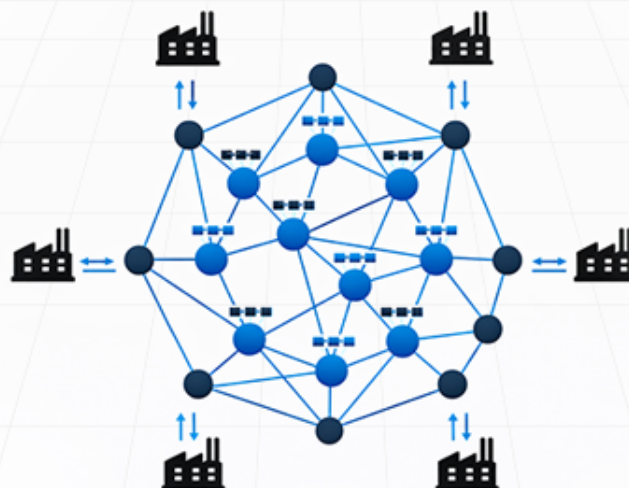
Unova is horizontal by design and built to support an evolving ecosystem of decentralized applications without embedding vertical-specific logic into the protocol.

Why This Matters

By addressing coordination at the infrastructure level, Unova enables:

- Scalable cross-organizational automation
- Real-world decentralized applications
- New economic models built on shared execution
- Long-term network effects independent of any single vertical

Rather than optimizing for one industry or use case, Unova lays the foundation for a decentralized real-world economy in which independent actors can distribute data, automate, and innovate without surrendering control to centralized platforms.





L-1 & L-2 Hybrid Blockchain Network

Unova operates as a hybrid blockchain network where execution and data distribution occur on-chain, while data, applications, and privacy-sensitive logic remain off-chain under first-party control. This enables scalable global data distribution without centralizing data.

Building a Community of Innovators

Unova is designed as open infrastructure that supports third-party innovation, new business models, and decentralized applications built on shared execution. Network incentives align participation with long-term ecosystem growth.

Consensus Mechanism

Unova follows a phased consensus approach. The network initially operates under Proof-of-Authority (PoA) to enable stable onboarding by trusted stakeholders, with a possible transition to Proof-of-Stake (PoS) as UON distribution and decentralization increase.

Mass Adoption Considerations

The combination of a hybrid architecture, multiple node types, and privacy-enabled data distribution allows Unova to support adoption by real-world organizations without requiring fundamental changes to existing systems.

Single Command-Line Installation

To reduce onboarding friction, Unova nodes can be installed using the Node Onboarding Package (NOP), enabling rapid participation without prior blockchain expertise.



L-1-L-2 HYBRID ARCHITECTURE

Unova-Mainnet is implemented as an L-1-L-2 hybrid blockchain architecture, specifically designed to support decentralized data distribution in real-world environments.

This architectural choice is fundamental. Real-world data distribution requires scalability, privacy, and integration with existing systems, requirements that cannot be met by a purely on-chain model. At the same time, off-chain systems without cryptographic guarantees fail to provide trustless execution.

Unova resolves this tension by separating execution and verification from data handling and application logic, while maintaining cryptographic linkage between both layers.

Why a Hybrid Architecture Matters

The choice for an L-1-L-2 hybrid model directly addresses the limitations of both Web2 platforms and existing blockchains.

A purely on-chain system:

- Cannot scale to real-world data volumes
- Exposes sensitive information by default
- Results in unpredictable costs and performance

A purely off-chain system:

- Relies on trusted intermediaries
- Lacks deterministic execution guarantees
- Cannot provide shared, verifiable state across organizations

By combining an on-chain execution layer with off-chain data and application layers, Unova achieves:

- **Scalability without centralization**
Large data flows never burden the blockchain
- **Privacy without opacity**
Data remains private, while execution outcomes are publicly verifiable
- **Automation without intermediaries**
Shared logic is enforced by smart contracts, not platforms
- **Enterprise usability**
Organizations integrate without replacing existing systems

This hybrid model is foundational to Unova's ability to function as real-world infrastructure rather than a crypto-native experiment.



Layer-1 – Unova-Mainnet (Execution & Consensus)

The Layer-1 blockchain acts as the shared execution and data distribution layer of the Unova network.

Its responsibilities include:

- Execution of smart contracts governing shared logic
- Coordination of multi-party workflows
- Enforcement of permissions and execution rules
- Immutable and auditable state transitions
- Network security and consensus

Smart contracts on Unova-Mainnet act as a distributed state machine, defining how shared processes evolve across independent actors. Each state transition represents a verifiable agreement between independent actors, enforced by the network rather than by trust or legal contracts..

Importantly, Layer-1 is deliberately minimal. It does not store documents, large datasets, or application logic. This ensures:

- Predictable performance
- Reduced attack surface
- Long-term scalability

Layer-2 – Off-Chain Data, Decentralized Applications & Privacy

Layer-2 is where real-world complexity is handled.

It enables:

- Off-chain data storage and processing
- Hosting of decentralized applications
- API integrations with existing (enterprise) systems
- Privacy-sensitive business logic and workflows

By keeping data and application logic off-chain, Unova allows organizations to:

- Comply with regulatory requirements
- Retain data sovereignty
- Scale without performance bottlenecks

Each organization operates its own Layer-2 components, ensuring that all data remains under first-party control. No global data replication occurs by default.

Layer-2 systems interact with Layer-1 through cryptographic references (hashes, identifiers, execution proofs), ensuring that off-chain activity can be verified without being centralized or exposed.



Privacy-Enabled data distribution by Design

A defining characteristic of Unova's architecture is privacy-enabled data distribution.

Instead of broadcasting data across the network:

- Data is grouped into verifiable bundles
- Access and usage rights are enforced by smart contracts
- Data is shared only with authorized parties
- Execution outcomes remain publicly verifiable

This enables data distribution in environments where confidentiality, regulatory compliance, and data minimization are mandatory.

The main aspects of the distribution protocol are:





Execution Flow Across L-1 and L-2

The interaction between L-1 and L-2 follows a structured execution flow:



Authorized participants act on-chain and retrieve off-chain data based on verified outcomes.

This ensures trustless data distribution while underlying data remains private.

Adoption, Scalability & Performance

The hybrid architecture enables Unova to:

- Scale horizontally across organizations and applications
- Support high-throughput data distribution
- Maintain predictable transaction costs
- Integrate alongside existing infrastructure

Organizations can participate without migrating data or replacing systems, lowering adoption friction and enabling gradual roll-out.

Why This Architecture Is Defensible Long-Term

The L-1-L-2 hybrid architecture provides Unova with durable, long-term advantages:

- It aligns with regulatory and privacy requirements
- It scales with adoption rather than against it
- It supports multiple industries without protocol changes
- It enables compounding network effects at the infrastructure level

This positions Unova as foundational data distribution infrastructure rather than a single-use blockchain network.



NODE ARCHITECTURE & NETWORK PARTICIPATION

Unova is designed as a participatory network, not a centrally operated system. Its node architecture reflects the reality that real-world data distribution involves different actors with fundamentally different responsibilities, incentives, and risk profiles.

Rather than enforcing a single node model, Unova introduces a multi-node architecture in which participants select the node type that matches their role in the network. Each node type has explicit functionality, configuration, and operational scope, enabling decentralization without sacrificing security, usability, or adoption.

Why Node Design Is a Core Strategic Choice

In most blockchain networks, node architecture is treated as an implementation detail. In Unova, it is a strategic design layer.

Real-world data distribution requires:

- Trusted execution without centralized control
- Data sovereignty without fragmentation
- Open innovation without compromising security

Node Participation in the L-1-L-2 Hybrid Network

When installing a node and becoming part of the Unova network, participants choose the functionality contained within the node. Each node type has specific configurations and protocols that serve its function within the L-1-L-2 hybrid architecture.

This design enables:

- Scalable global data distribution
- Private data distribution between stakeholders
- Flexible participation across organizational boundaries
- Gradual onboarding without structural disruption

Node installation and configuration are standardized through the single command-line Node Onboarding Package (NOP), allowing participation without deep blockchain expertise.

Importantly, organizations are not required to operate both Type-1 and Type-2 nodes in order to participate in the network. Each node type can be deployed independently, depending on the role and responsibilities an organization chooses to assume.

Organizations may operate:

- Only Type-1 nodes to participate in execution and consensus
- Only Type-2 nodes to leverage applications and data coordination
- Or both, where combined roles are desired

This modular participation model allows organizations to adopt Unova incrementally, without unnecessary operational burden.

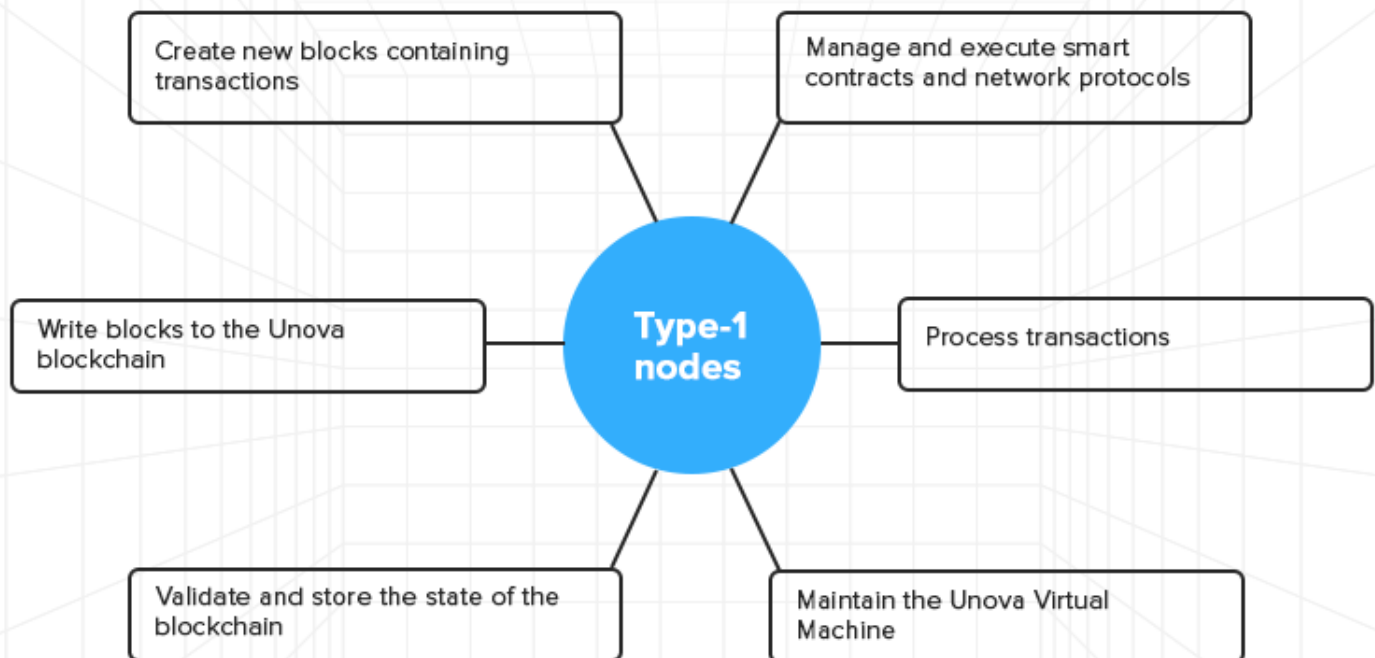


Type-1 Nodes: Validator & Execution Nodes

Type-1 nodes are primarily responsible for network decentralization, security, and execution.

They form the execution backbone of Unova-Mainnet and are used to increase decentralization and trust minimization across the network.

Core responsibilities



Network role

- Are operated by participants who wish to actively secure the network
- Allow for a high level of decentralization
- Participate directly in consensus
- Do not host application data or off-chain business logic with this node

Deployment

Type-1 nodes are installed using the single command-line Node Onboarding Package, enabling standardized and secure deployment.

This strict separation ensures that execution security remains independent from data custody.

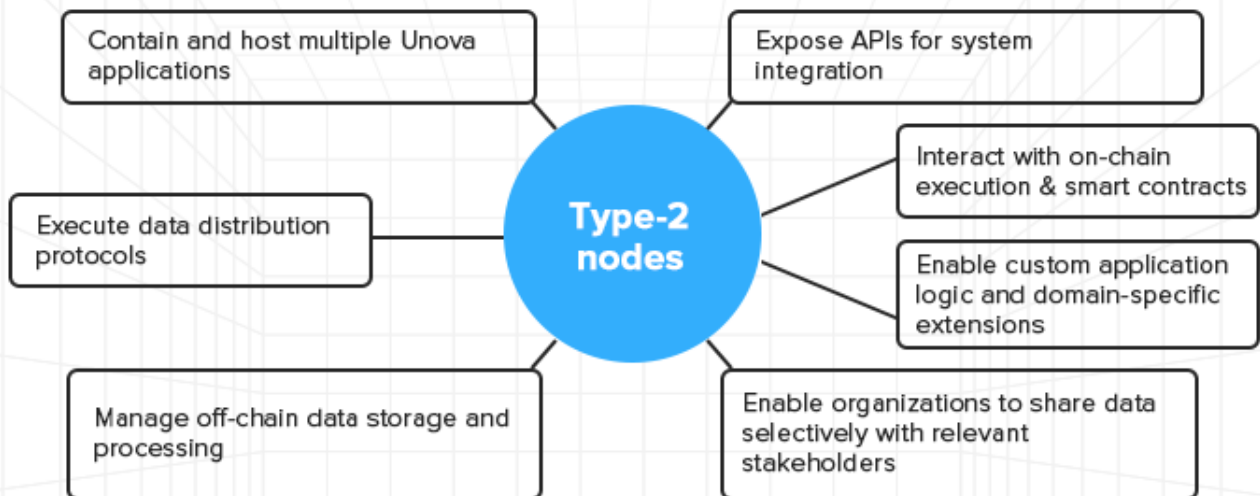


Type-2 Nodes: Data Distribution & Decentralized Application Nodes

Type-2 nodes are designed for participants who want to leverage Unova's Web3 infrastructure, applications, and privacy-enabled data distribution capabilities.

They represent the primary interface between Unova and real-world systems.

Core responsibilities



Network role

- Are operated by organizations using the infrastructure and its applications
- Connect to other Type-2 nodes for permissioned data distribution
- Interact with smart contracts on Unova-Mainnet for execution and verification
- Retain full first-party control over all hosted data

Deployment

Type-2 nodes are installed using the single command-line Node Onboarding Package, enabling rapid onboarding without operational complexity.

This node type enables real-world adoption without compromising privacy or control.

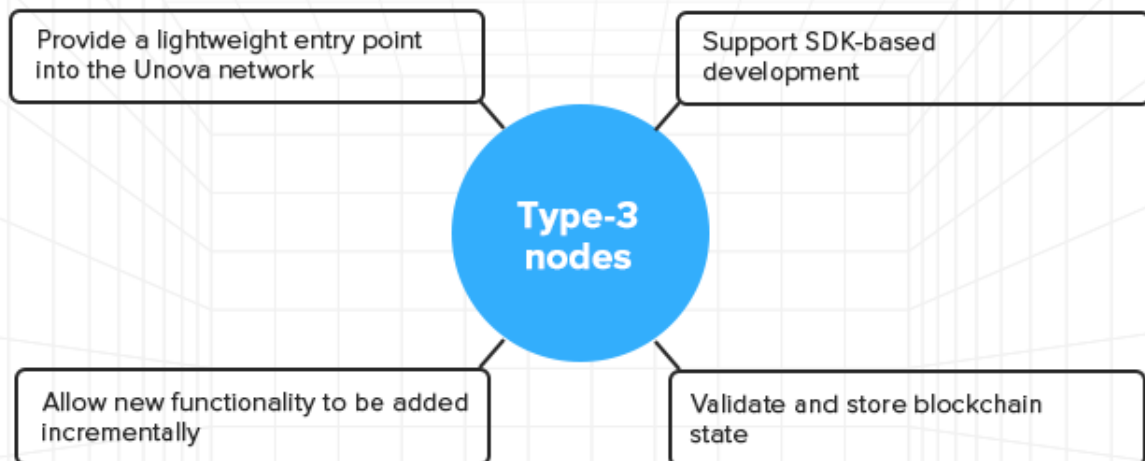


Type-3 Nodes: Open Innovation Nodes

Type-3 nodes, also referred to as Open Innovation Nodes (OIN), represent the most basic form of participation within the Unova network.

They are specifically designed to support open innovation, experimentation, and new business models.

Core responsibilities



Network role

- Are operated by organizations or developers who prefer a minimal node setup
- Enable experimentation without full validator or enterprise responsibilities
- Support rapid iteration and prototyping on top of the infrastructure

Deployment

Like other node types, Type-3 nodes are installed using the single command-line Node Onboarding Package.

By separating innovation from execution security, Unova allows experimentation to flourish without compromising network stability. This structure supports long-term ecosystem growth while maintaining clear boundaries between experimental and critical infrastructure.



TOKEN ECONOMY – UON

The Unova network is underpinned by a native utility token, UON, designed to align economic incentives across validators, organizations, developers, and applications.

UON is not introduced as a speculative asset, but as an infrastructure token that enables secure execution, network participation, and sustainable decentralization.

Core Utility

UON is required for:

- Execution of smart contracts on Unova-Mainnet
- Participation in network consensus
- Access to protocol-level data distribution services
- Validator incentives and economic security

By embedding UON directly into core protocol operations, Unova ensures that network usage and economic demand are structurally linked.

Security & Incentives

Validators are economically incentivized to:

- Execute protocol rules correctly
- Maintain high availability
- Protect network integrity

Depending on the consensus phase, this is enforced through:

- Reputational and governance-based accountability (PoA)
- Staking, rewards, and slashing mechanisms (PoS)

This alignment ensures that network security scales alongside adoption.



Supporting Progressive Decentralization

UON distribution is designed to support Unova's phased decentralization strategy.

Early stages prioritize network stability and ecosystem development. As adoption increases, broader token distribution enables permissionless validator participation and decentralized governance.

This avoids premature decentralization while maintaining a clear path toward long-term openness.

Predictable Costs for Real-World Adoption

To support operational use cases, Unova is designed to provide:

- Predictable execution costs
- Transparent pricing mechanisms
- Economic visibility for long-term planning

This is essential for organizations integrating Unova into real-world processes rather than experimental deployments.

Long-Term Economic Sustainability

Over time, network security transitions from issuance-driven incentives to usage-driven demand. As data distribution activity increases, UON consumption reinforces the economic sustainability of the network.

This positions UON as a durable economic layer supporting long-term infrastructure adoption.





APPLICATIONS, ECOSYSTEM & MARKET OPPORTUNITY

Unova is designed as horizontal Web3 infrastructure that enables decentralized data distribution across industries. Its value does not depend on a single application or vertical, but on its ability to support a growing ecosystem of independently operated decentralized applications.

Rather than hosting or controlling applications, Unova provides the shared execution and data distribution layer upon which they are built.

Decentralized Applications on Unova

Applications built on Unova function as data distribution layers that connect independently operated systems through smart contracts.

They are characterized by:

- **Independent ownership and deployment**
Applications are built, deployed, and operated by their creators without protocol approval
- **Execution-driven architecture**
Shared logic is enforced on-chain, while data and workflows remain off-chain
- **Privacy-preserving coordination**
Sensitive information is shared selectively and never globally replicated
- **Composability across use cases**
Applications reuse shared execution logic without central dependencies
- **Operation by participants, not platforms**
Each stakeholder runs its own infrastructure and retains autonomy
- **Integration with existing systems**
Applications connect through APIs rather than replacing enterprise software



Ecosystem Growth Model

Unova's ecosystem grows through infrastructure adoption, not user aggregation. As organizations adopt Unova to coordinate execution, new applications and integrations emerge organically.

This growth is driven by:

- **Permissionless innovation**
Developers can build without centralized gatekeeping
- **Multiple participation models**
Node types enable diverse stakeholders to participate safely
- **Low onboarding friction**
Standardized node installation supports rapid adoption
- **Shared execution as a common layer**
Network effects compound at the infrastructure level
- **Economic alignment via UON**
Application usage reinforces network security and sustainability
- **Horizontal applicability**
Growth in one industry increases value across others

MARKET EXPANSION THROUGH INFRASTRUCTURE ADOPTION

By remaining application-agnostic, Unova's market opportunity compounds over time. Each new application, integration, or industry built on the network increases the utility of the underlying infrastructure.

Rather than competing within a single market, Unova positions itself as foundational data distribution infrastructure for the decentralized real-world economy.





Market Opportunity

Unova addresses a structural data distribution challenge that spans industries. Because it operates at the infrastructure layer rather than at the application level, its addressable market expands with every new decentralized application built on the network.

Rather than targeting a single vertical, Unova provides a horizontal data distribution layer for real-world execution, enabling a wide range of economic activity to migrate toward trust-minimized infrastructure.

Regulatory & Compliance Complexity

As regulatory requirements increase across industries, organizations face growing pressure to provide verifiable execution, auditability, and accountability across multi-party workflows.

Drivers include:

cross-organizational reporting obligations

traceability and provenance requirements

enforcement without centralized intermediaries

Unova enables:

cryptographic guarantees instead of legal trust

deterministic execution of shared rules

auditable outcomes without exposing sensitive data

Transparency & Accountability in Shared Processes

Modern economic processes increasingly span multiple independent actors. Traditional trust-based data distribution does not scale.

Real-World Asset Tokenization

Tokenization of real-world assets requires more than representation. It requires data distribution of execution, rights, and state changes across organizations. Unova provides these primitives at the protocol level.

Infrastructure requirements include:

verifiable provenance

shared execution logic

privacy-preserving coordination



AI-Driven Automation & Autonomous Systems

As AI systems increasingly participate in decision-making and execution, they require verifiable data distribution logic rather than opaque platforms.

Unova supports:

decentralized financial data distribution

execution without custodial intermediaries

Integration with non-financial real-world processes

Unova enables:

data distribution between autonomous agents

enforcement of shared execution rules

accountability for AI-driven decisions

Decentralization of Financial Services

Financial services increasingly demand trust-minimized execution rather than reliance on centralized operators.

Cross-Industry Digital Transformation

Data distribution challenges are not vertical-specific. Industries face similar structural problems when processes cross organizational boundaries.

Unova's horizontal design enables:

reuse of data distribution infrastructure across sectors

composability between applications

expanding market reach without protocol changes



Conclusion

Unova is designed to address a fundamental gap in today's digital infrastructure: the lack of a neutral, trust-minimized data distribution layer for real-world execution across independent organizations.

By combining a hybrid L-1-L-2 architecture, smart contracts as a distributed state machine, privacy-enabled data distribution, and a multi-node participation model, Unova enables decentralized data distribution without sacrificing sovereignty, scalability, or usability.

Organizations retain control over their data and systems.
Developers gain a neutral execution layer for innovation.
Ecosystems grow without platform lock-in.

Unova is not optimized for a single use case or industry. It is built to support the long-term evolution of decentralized, programmable economies.