



COSMOS LEDGER LABS

**INFRASTRUCTURE SOFTWARE FOR AUTOMATED
DIGITAL ASSET SYSTEMS**

ARCHITECTURE DIAGRAM

Non-custodial by design — signing and settlement run inside the customer's own infrastructure; keys and funds never touch COSMOS.

Target architecture — design complete; build phase to follow (MVP is a clickable prototype, not yet on-chain).

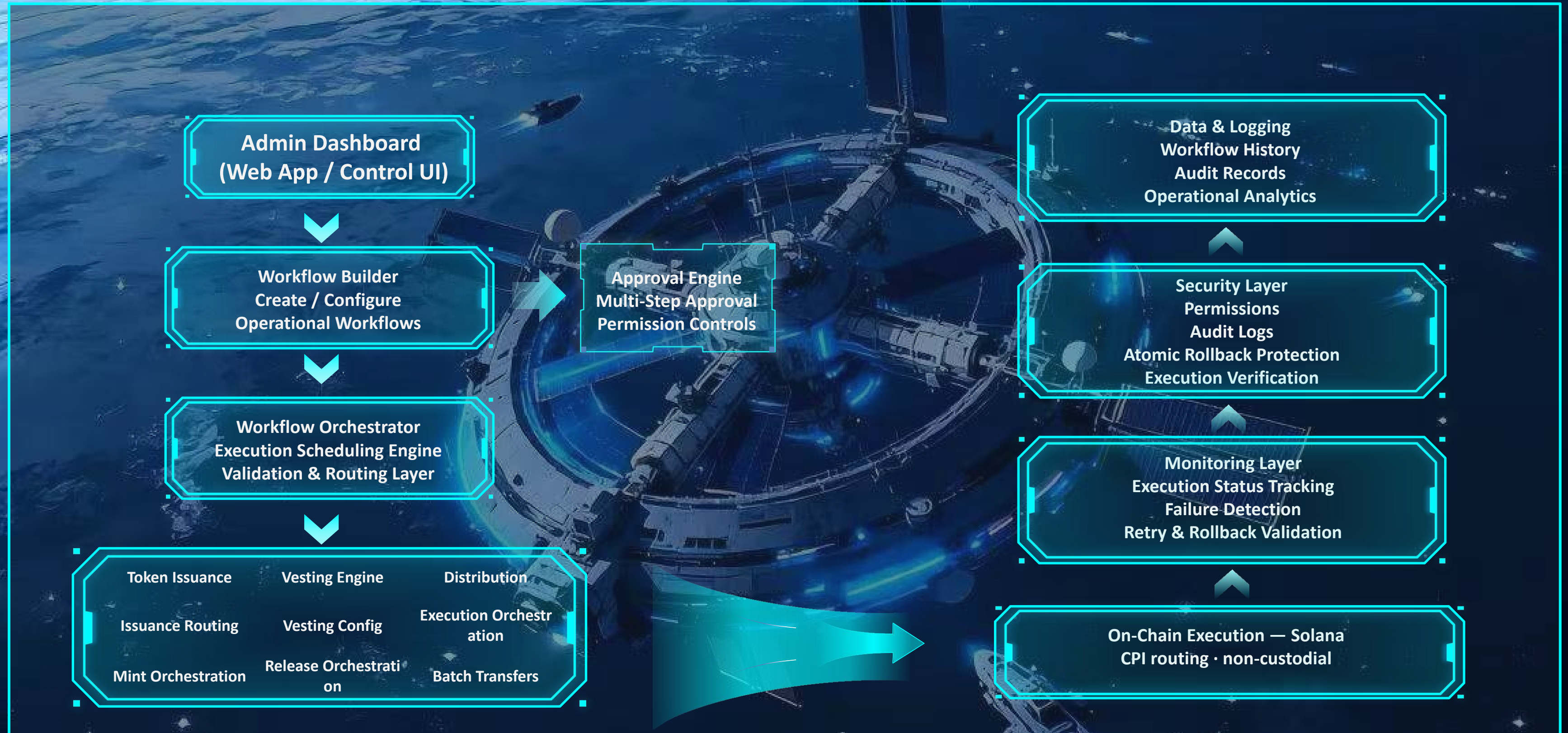
PLATFORM OVERVIEW

COSMOS LEDGER LABS is designed as a secure workflow automation platform for digital asset systems.



The system is structured around workflow orchestration, operational security, and scalable execution infrastructure.

HIGH-LEVEL ARCHITECTURE DIAGRAM



CORE SYSTEM COMPONENTS

01 Admin Dashboard

Designed as the primary operational interface for:

- Workflow management
- Distribution management
- Vesting setup
- Monitoring
- Approval operations
- Execution tracking

02 Workflow Builder

Designed to handle:

- Creating programmable operational workflows
- Defining execution rules
- Configuring vesting schedules
- Configuring distribution logic
- Trigger management

3. Approval Engine

Designed to handle:

Multi-step approvals

Permission validation

Role-based access control

Operational authorization

3A. Wallet & Permission Infrastructure

The platform is designed to support secure wallet coordination and permission-based operational execution.

COSMOS orchestrates approval and signing requests; every signature executes inside the customer's own Solana wallets. COSMOS never holds keys, takes custody of funds, or signs on the customer's behalf.

Core infrastructure includes:

Multi-wallet Coordination

**Treasury Workflow Coordination
Signing Request Orchestration**

Signer Authorization

Permission Validation

Signing Request Orchestration

Operational Access Controls

CORE SYSTEM COMPONENTS

4. Workflow Orchestrator

Core operational layer designed to handle:

- Workflow scheduling
- Execution coordination
- Validation routing
- Trigger execution
- Transaction preparation

4A. Execution Flow Lifecycle

- User Creates Workflow
- Approval Validation
- Execution Queue
- Unsigned-Tx Builder
- On-Chain Validation
- Settlement (customer-signed)
- Execution Monitoring
- Audit Logging
- Rollback Recovery

CORE SYSTEM COMPONENTS

5. Token Issuance Layer

Designed to orchestrate:
Token issuance workflows
Supply configuration
Issuance coordination
Mint-authority routing (via
customer mint authority —
non-custodial)

6. Vesting Engine

Designed to orchestrate:
Token lock schedules
Linear vesting
Timed releases
Allocation tracking
(orchestrated via
Streamflow)

7. Distribution Engine

Designed to orchestrate:
Automated distributions
Batch transfers
Treasury operations
Scheduled token
transfers (via Squads /
customer treasury)

SOLANA LAYER & MONITORING

8. On-Chain Execution Layer (Solana)

Infrastructure execution layer designed to handle:

- Non-custodial signing via customer wallets
- CPI execution
- Transaction validation
- On-chain settlement via audited third-party venues (Streamflow / Squads)
- Coordination with audited third-party venues (Streamflow / Squads / Magna)

8A. Backend Infrastructure Layer

The backend infrastructure layer is designed to coordinate workflow execution, operational monitoring, and scalable system orchestration. Core components include:

- API Gateway
- Execution Queue
- Database Layer
- Event Processing System
- Monitoring Services
- Retry Coordination
- Notification Services
- Operational Logging

9. Monitoring Layer

Designed to handle:

- Execution tracking
- Failure monitoring
- Status reporting
- Retry logic
- Rollback verification

9A. Failure Recovery System

The platform is designed to support operational recovery and execution validation during workflow failures. Core recovery capabilities include:

- Execution Failure Detection
- Retry Coordination
- Partial Execution Prevention
- Rollback Recovery
- Operational Recovery Validation
- Transaction Integrity Monitoring

The recovery system is designed to improve operational reliability and execution safety across automated workflows.

9B. Future Quantum-Resistant Security Considerations

The platform architecture is designed with future security extensibility in mind, including the potential integration of quantum-resistant security models and next-generation cryptographic standards as the digital asset infrastructure ecosystem evolves.

Future areas of exploration may include:

Advanced Cryptographic
Validation

Enhanced Operational Security
Frameworks

Quantum-Resistant Signature
Schemes

Long-Term Infrastructure Resilience

These considerations are part of the platform's long-term infrastructure vision and are not part of the current MVP, a clickable front-end prototype not connected to a live network.

Infrastructure Positioning

The platform is designed to provide operational coordination, programmable execution workflows, and scalable infrastructure tooling for Web3 ecosystems. COSMOS operates as a non-custodial orchestration and control layer above point tools (Streamflow, Squads, Magna).

Future Expansion Potential

Potential future expansion may include:

- API integrations
- Multi-chain-ready core (Solana-first)
- Enterprise workflow tooling
- Advanced orchestration systems
- Ecosystem integrations
- External treasury integrations



Security Layer

Designed to provide:

- Permissions
- Audit logs
- Atomic rollback protection
- Operational verification
- Security controls

Security Design Goals

Prevent double execution

Prevent replay attacks

Improve operational reliability

Support audit-ready architecture

Enable scalable operational workflows

Improve execution visibility



THANK YOU

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