



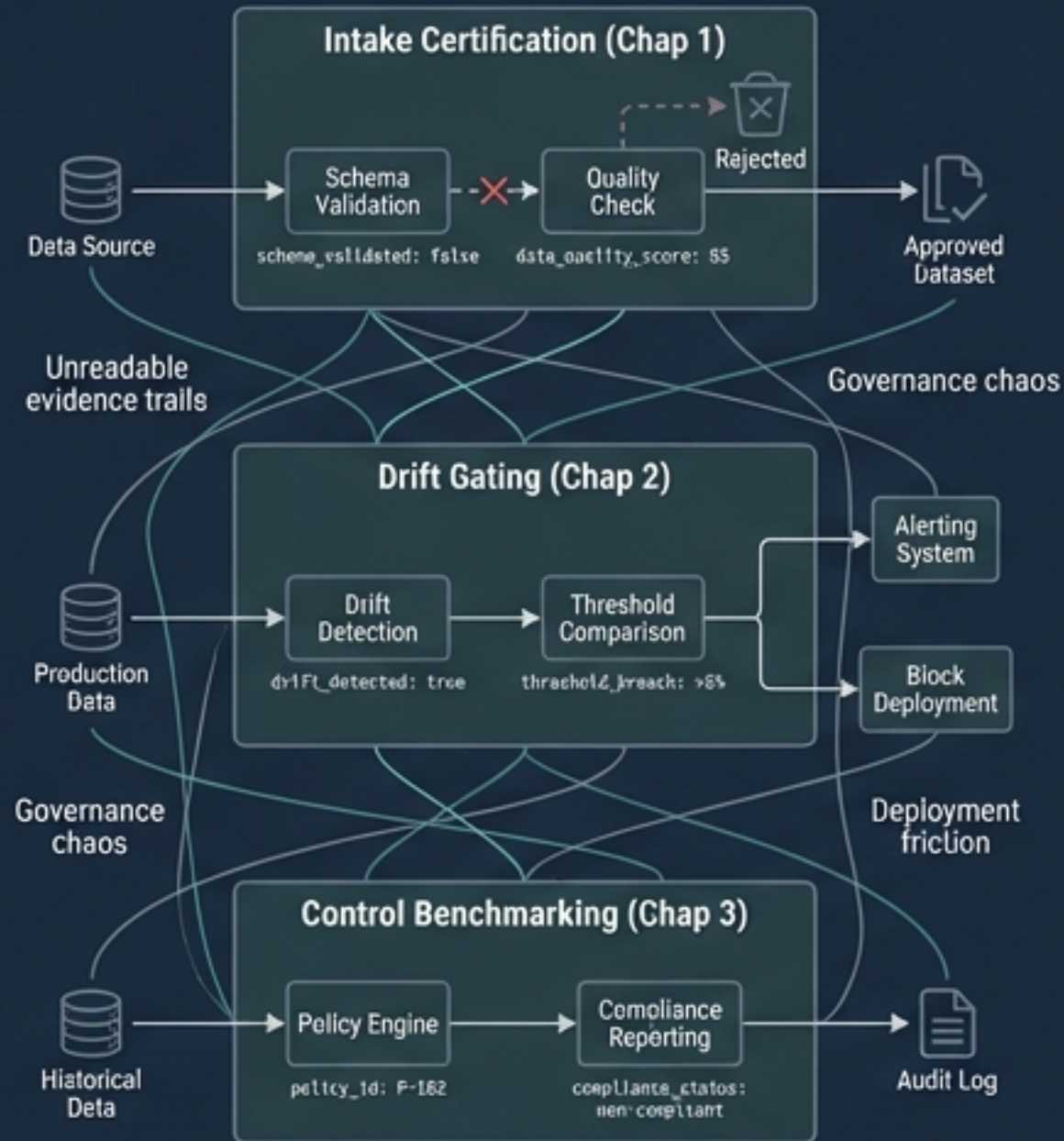
Drift Sentinel

DriftSentinel: Unified Data Trust at Enterprise Scale

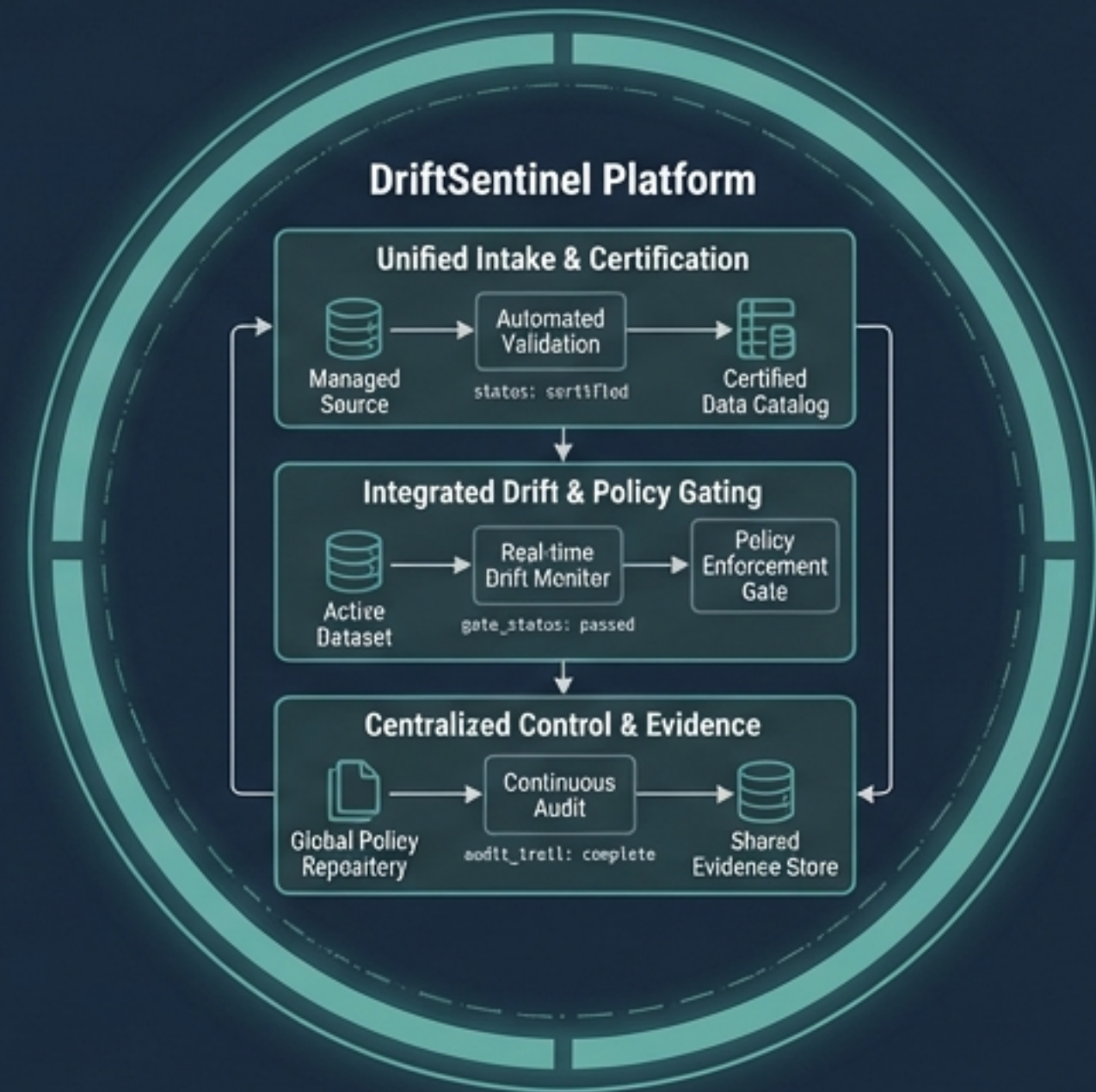
Consolidating intake certification, drift gating, and control benchmarking into a single Databricks-deployable platform.

Isolated data controls break down at enterprise scale

The Chaos

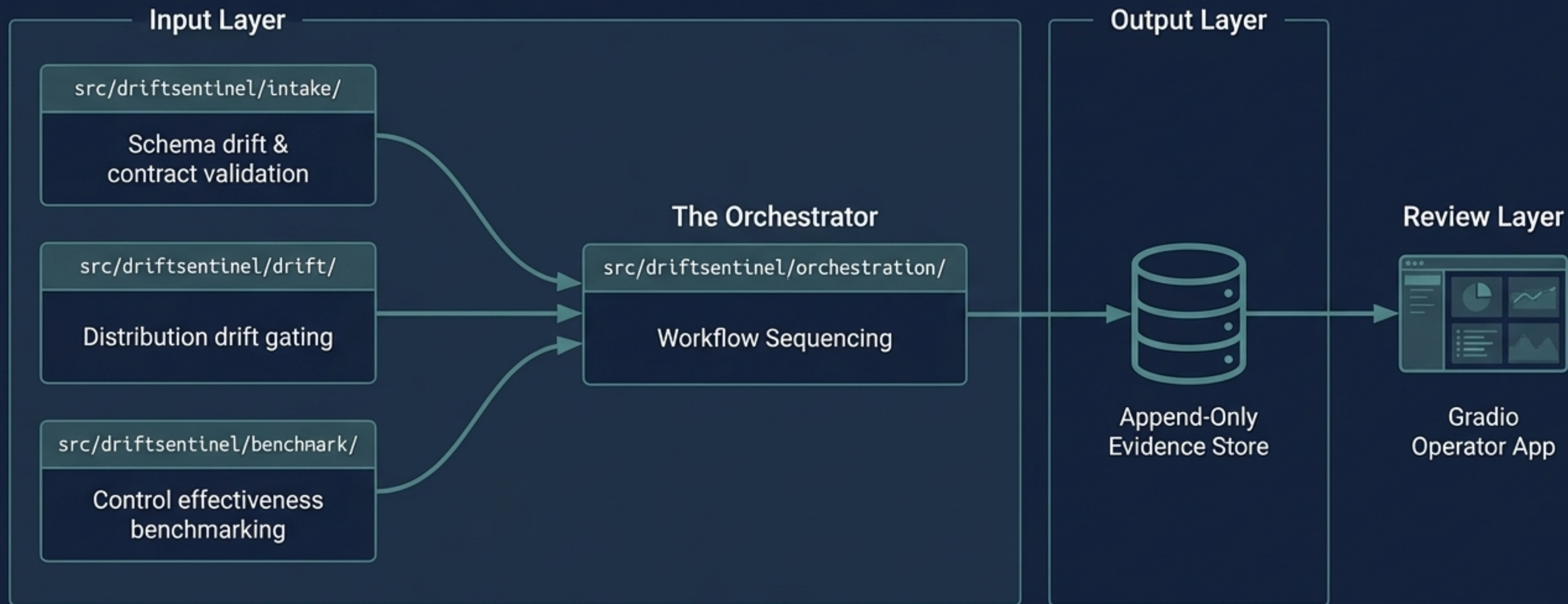


The Solution



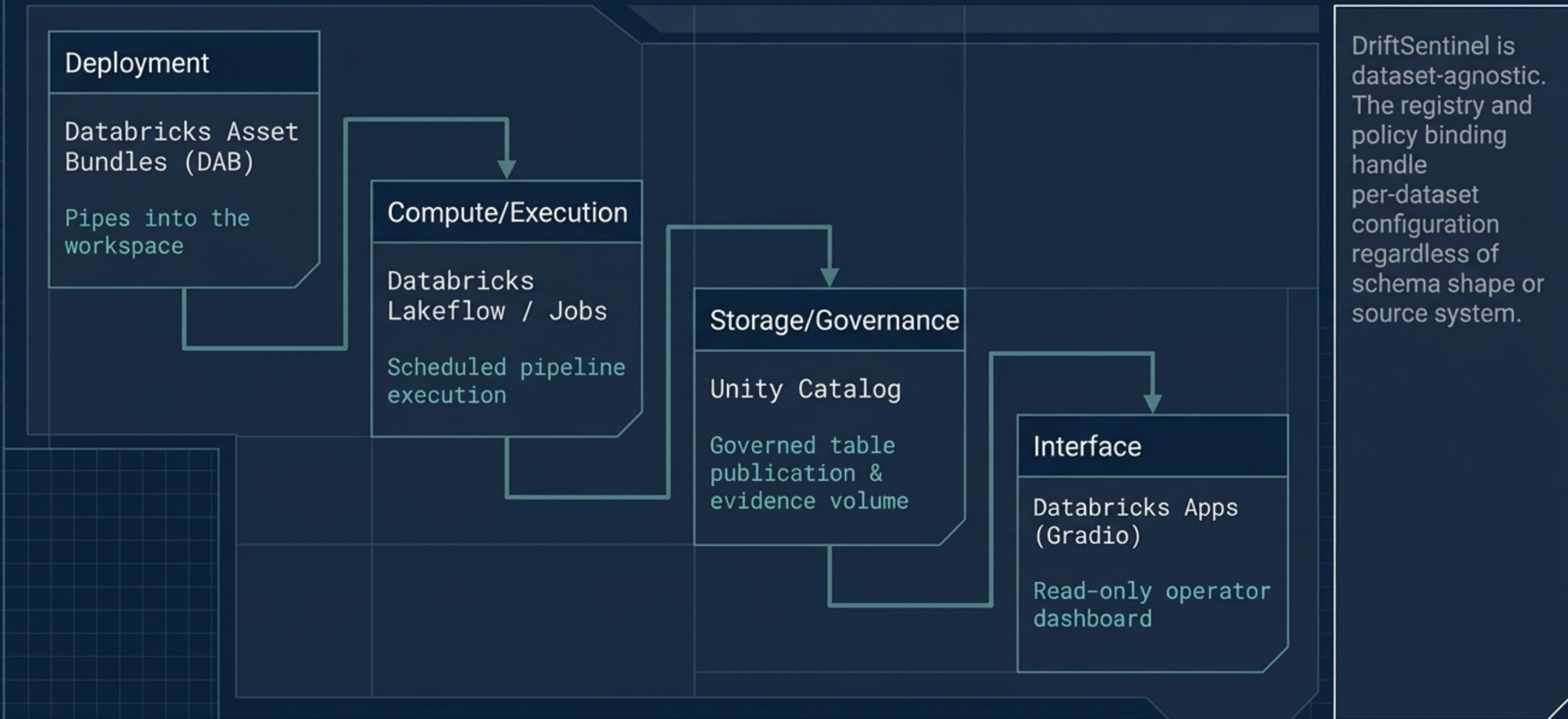
Enterprises that reach data trust maturity have solved individual problems. But running these controls across multiple datasets—with **version-aware contracts**, **consistent policy bindings**, and a **shared evidence store**—is a platform problem. DriftSentinel is the **Databricks-native** answer.

Three control patterns. One orchestration engine.

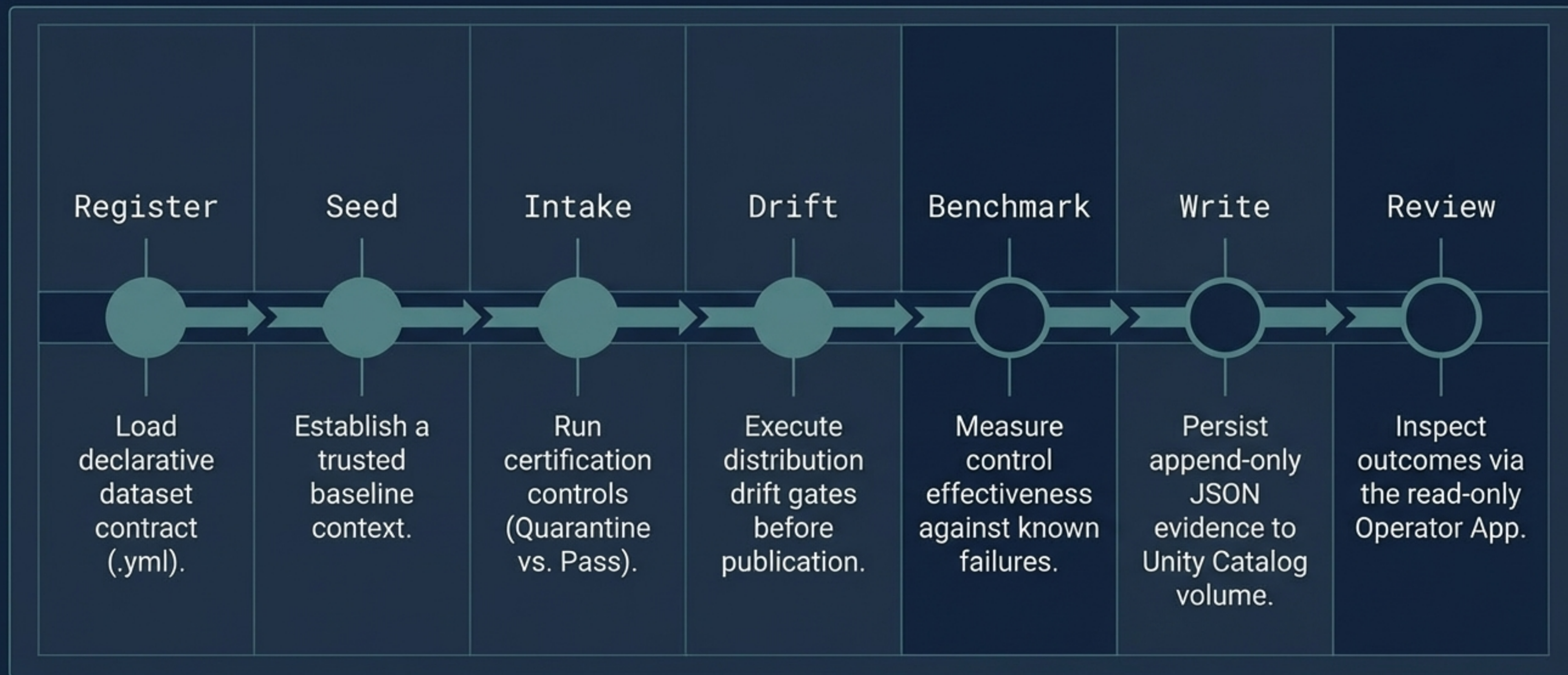


No assumption that any run passed unless the artifact says so. Three modules. One registry. Queryable evidence.

Databricks-native architecture built for reproducibility



The operational sequence: from registration to review



Declarative registration scales without source code modifications

Code Editor Window

```
dataset_id: meridian_labor_hours
contract_version: 1.0.0
catalog: driftsentinel
schema: default
policies:
  drift: templates/drift_policy.yml
  benchmark: templates/benchmark_policy.yml
```

Registry Table Mockup

Dataset ID	Contract Version	Policy Status
meridian_labor_hours	1.0.0	BOUND
meridian_project_costs	1.0.0	BOUND

Version-aware policy binding ensures that as contracts evolve, older run artifacts retain the exact contract version that was active when they were produced.

Audit-proof, machine-readable evidence for every run

```
{  
  "dataset_id": "meridian_project_costs",  
  "run_id": "8f92a-b71c",  
  "run_kind": "drift",  
  "verdict": "FAIL",  
  "health_score": 0.2,  
  "drifted_columns": 4,  
  "thresholds": {"max_drift": 0.05}  
}
```

Explicit Failure Reasons: Missing evidence fields force explicit failure. No silent filtering.

Measured Proof: FAIL artifacts carry gate results and thresholds to allow triage without opening raw files.

Non-Negotiable Constraint: Append-only evidence behavior. Never overwrite or delete evidence. No PASS claims without replayable evidence.

A read-only operator dashboard powered by Databricks Apps

The Gradio app exposes no write surfaces. Evidence is queried, never edited through the UI, keeping the audit trail clean.



Registry View

Table of registered datasets, contract versions, and policy compatibility status.



Run Status

Summary list of 48 recent evidence artifacts (27 PASS, 20 FAIL, 1 WARN) with click-to-expand details.



Evidence Explorer

Full JSON artifact inspection loaded instantly by filename.



Analytics

Visual telemetry mapping verdict distributions, daily activity volume, and health trends.

The Decision Contract: Measuring full pipeline health

health_score

0.98

Distribution stability: 0.0–1.0

quality_recall

100%

% of injected failures caught
by benchmarks

artifacts_pass_rate

92%

PASS artifacts / Total artifacts

Business Decision: Is the data control pipeline healthy across all registered datasets?

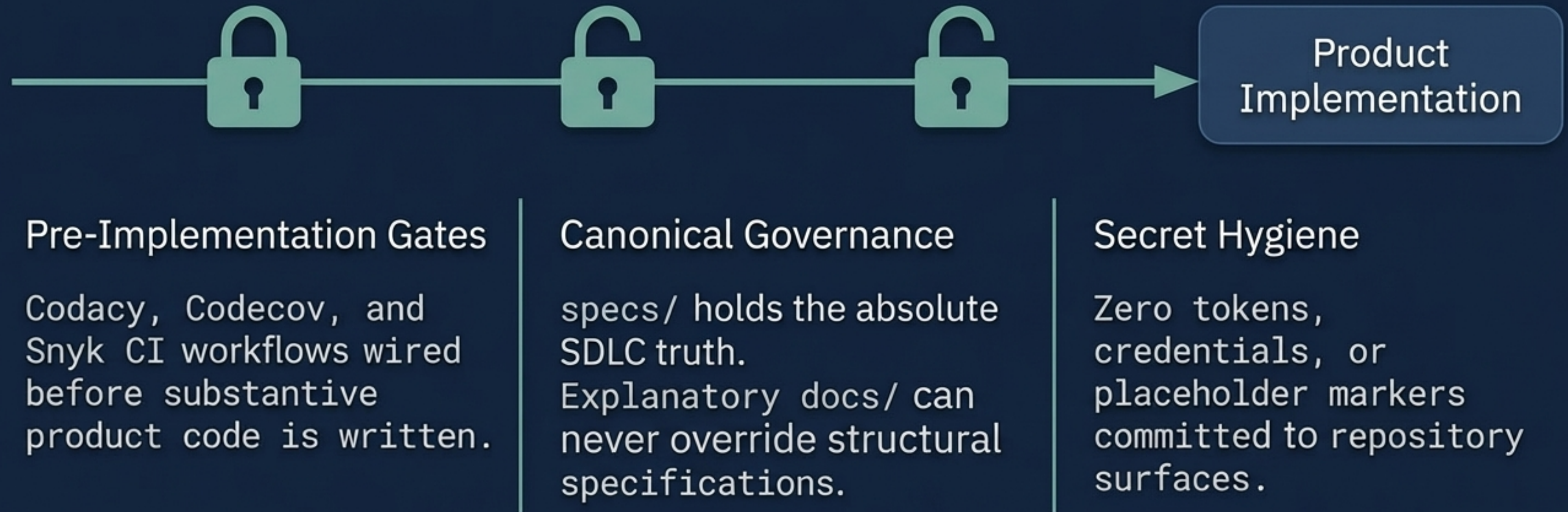
Control Rule: No run is assumed to have passed unless a **PASS artifact** exists in the shared directory.

Deployment options built for rigorous enterprise environments

	Path A: Databricks Asset Bundle	Path B: Direct Notebook Import
Target Environment	Paid workspace with Unity Catalog (Premium).	Free Edition evaluation or ad-hoc runs.
Operator Surface	Governed Gradio App + Scheduled Jobs.	Sequential Databricks Notebooks (01_register to 06_review).
Persistence	Shared Unity Catalog volume for evidence.	Cluster-local /tmp/driftsentinel_evidence (transient) .

Both paths utilize the exact same first-party package and orchestration code.
No functional drift between evaluation and production.

Built under uncompromising engineering guardrails



“Decision Order: 1. Correctness/Safety. 2. Evidence traceability. 3. Security. 4. Simplicity. 5. Reproducibility.”



Drift Sentinel

The Sentinel is active.

Unified

Three Control
Patterns.
Multiple Datasets.
One Registry.

Immutable

No silent filtering.
Append-only JSON
evidence ensuring
full auditability.

Deployable

Production-ready
Databricks Asset
Bundles and read-
only operator
interfaces.