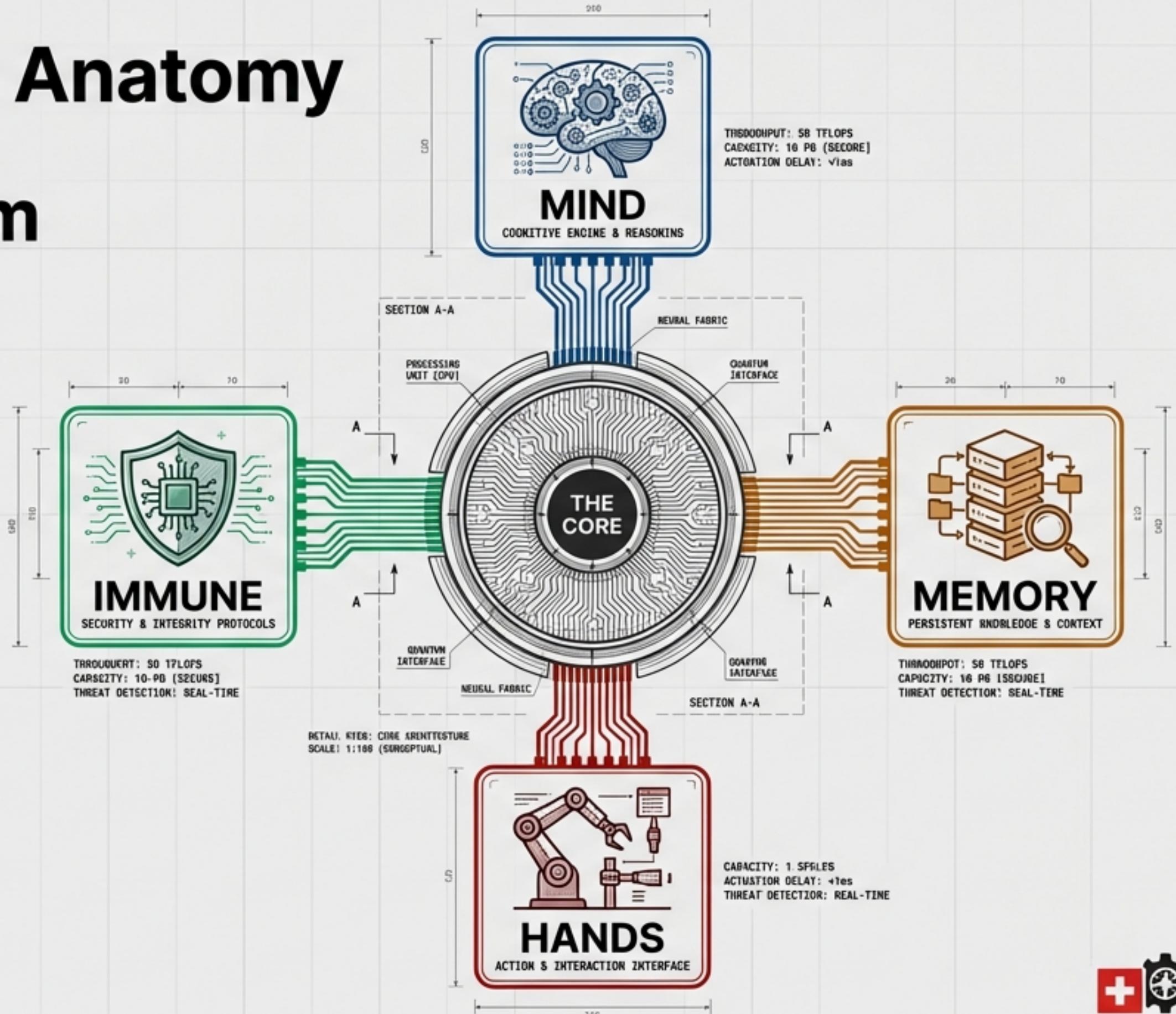


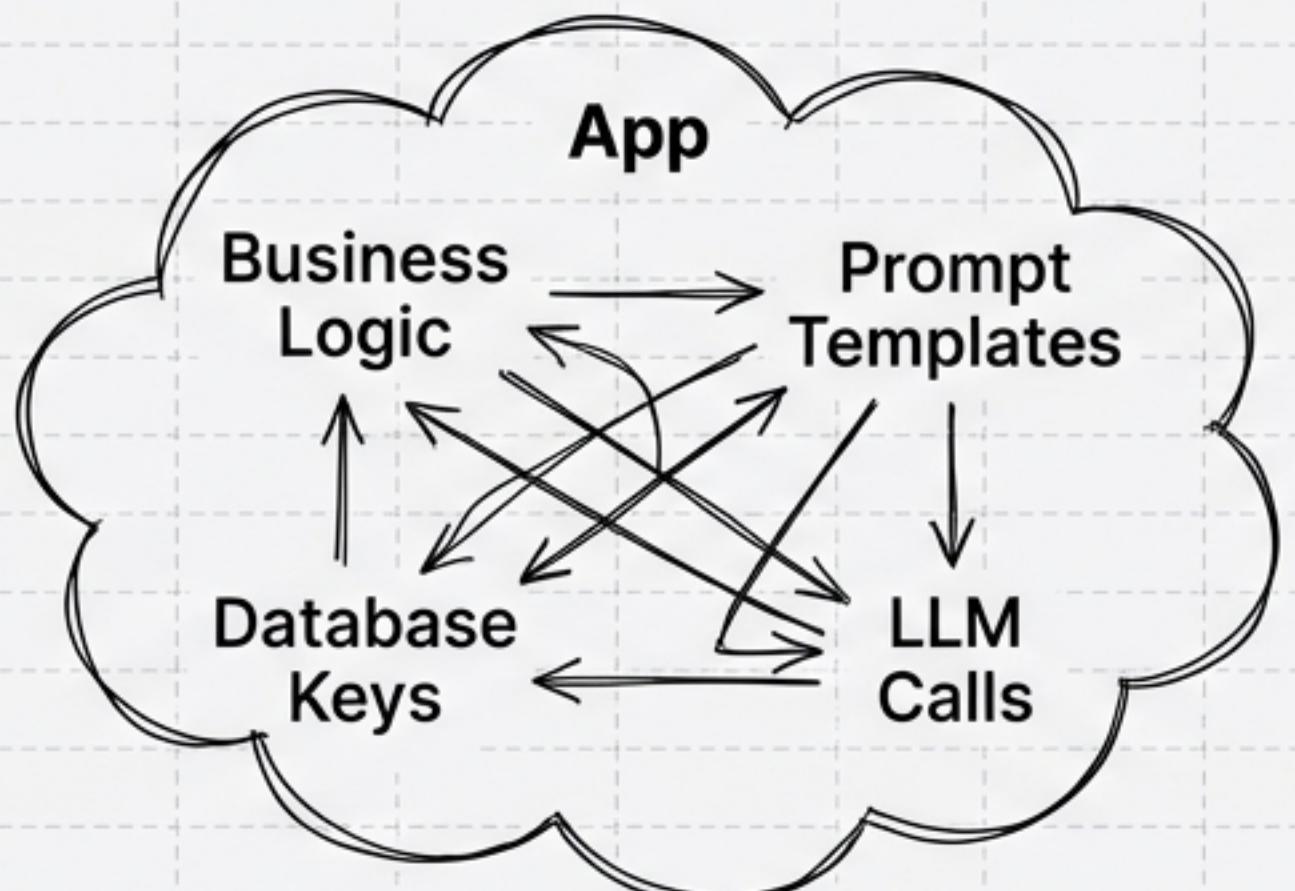
ContextUnity: The Anatomy of an Autonomous AI Operating System

A Modular, Agnostic Infrastructure for Sovereign Digital Entities

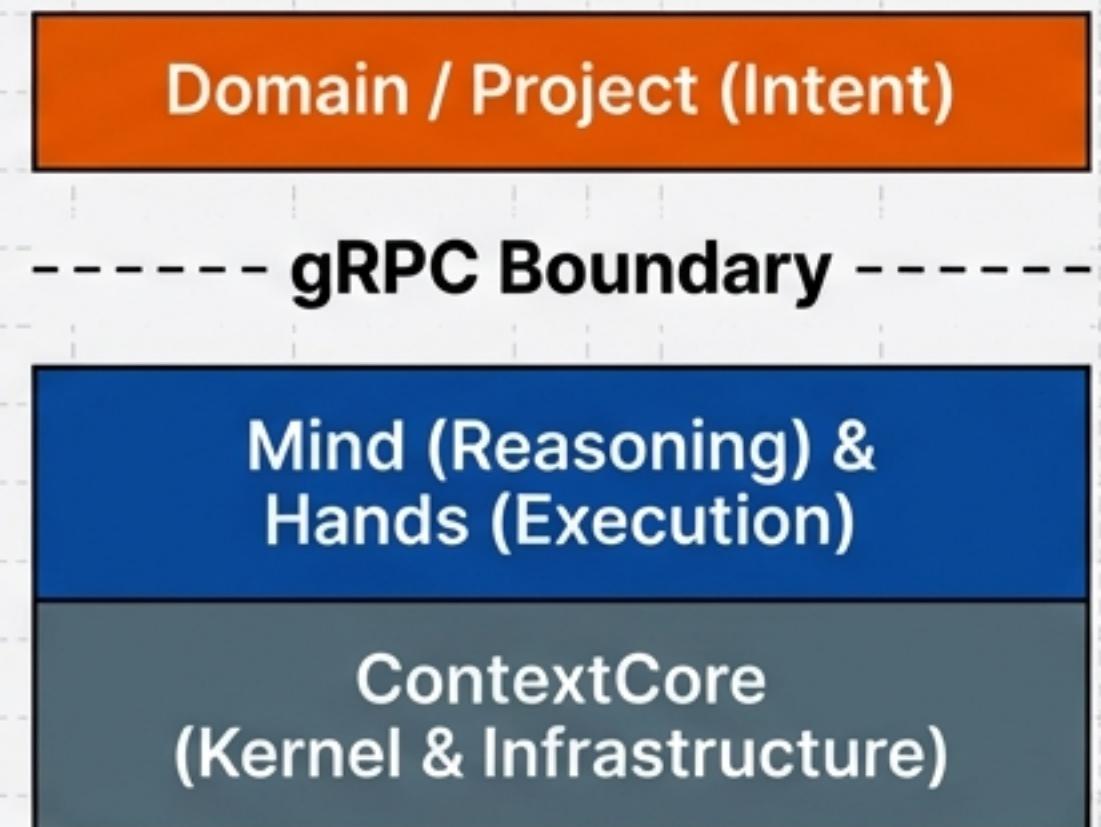


The Architectural Thesis: Inversion of Control

Legacy: Monolithic Chatbot



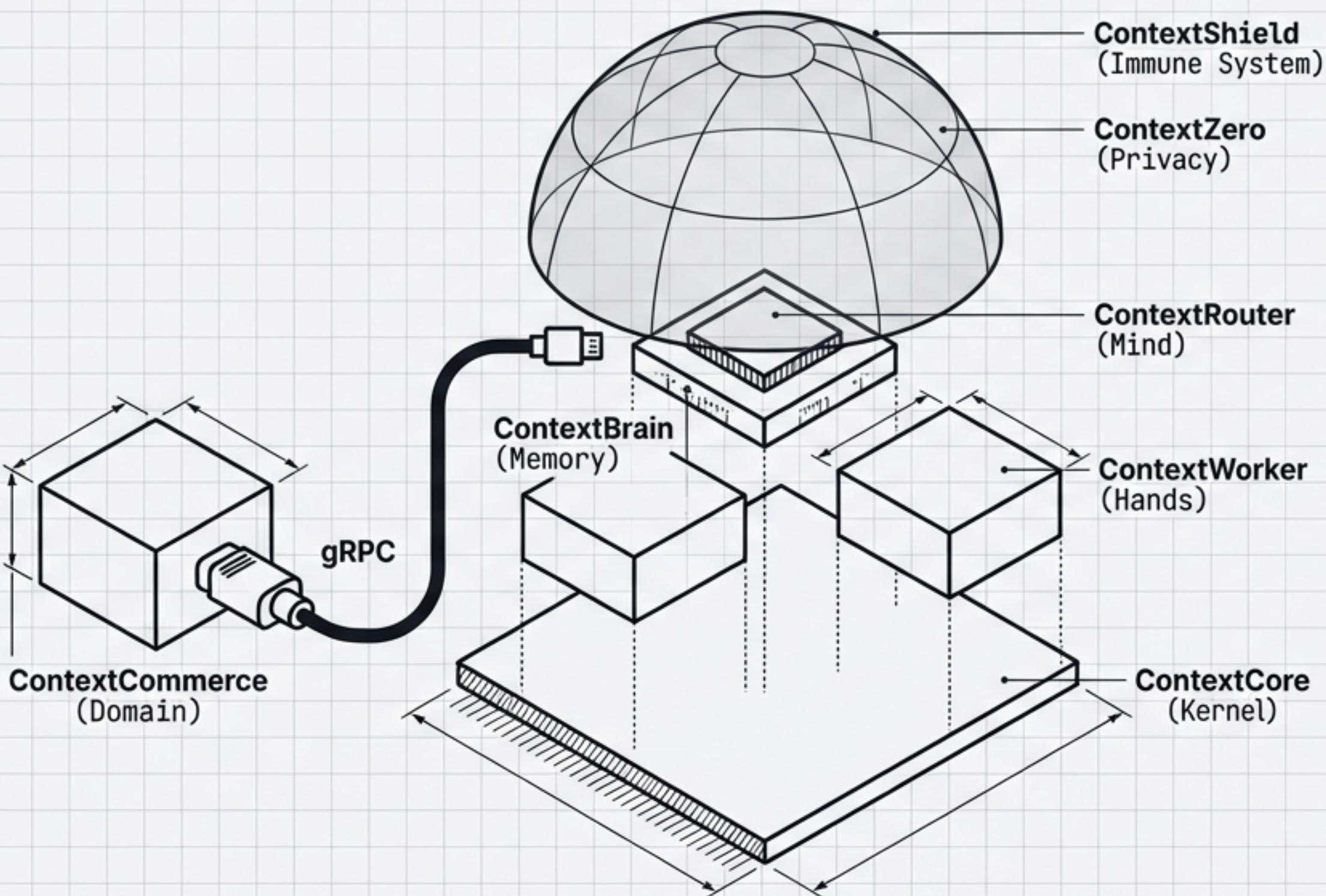
ContextUnity: Digital Entity Ecosystem



Logic Refactoring Threshold: >400 Lines

General Info	Engineering Title
Project Name	
Address	EMR
Phone	Date
Tel: 123-4567	2023-10-05

System Overview: The Biological Metaphor



Kernel: Protocols & Contracts
Mind: Reasoning & Orchestration
Memory: Vector & Graph Storage
Hands: Durable Execution
Immune: Policy Enforcement

The Nervous System: ContextCore

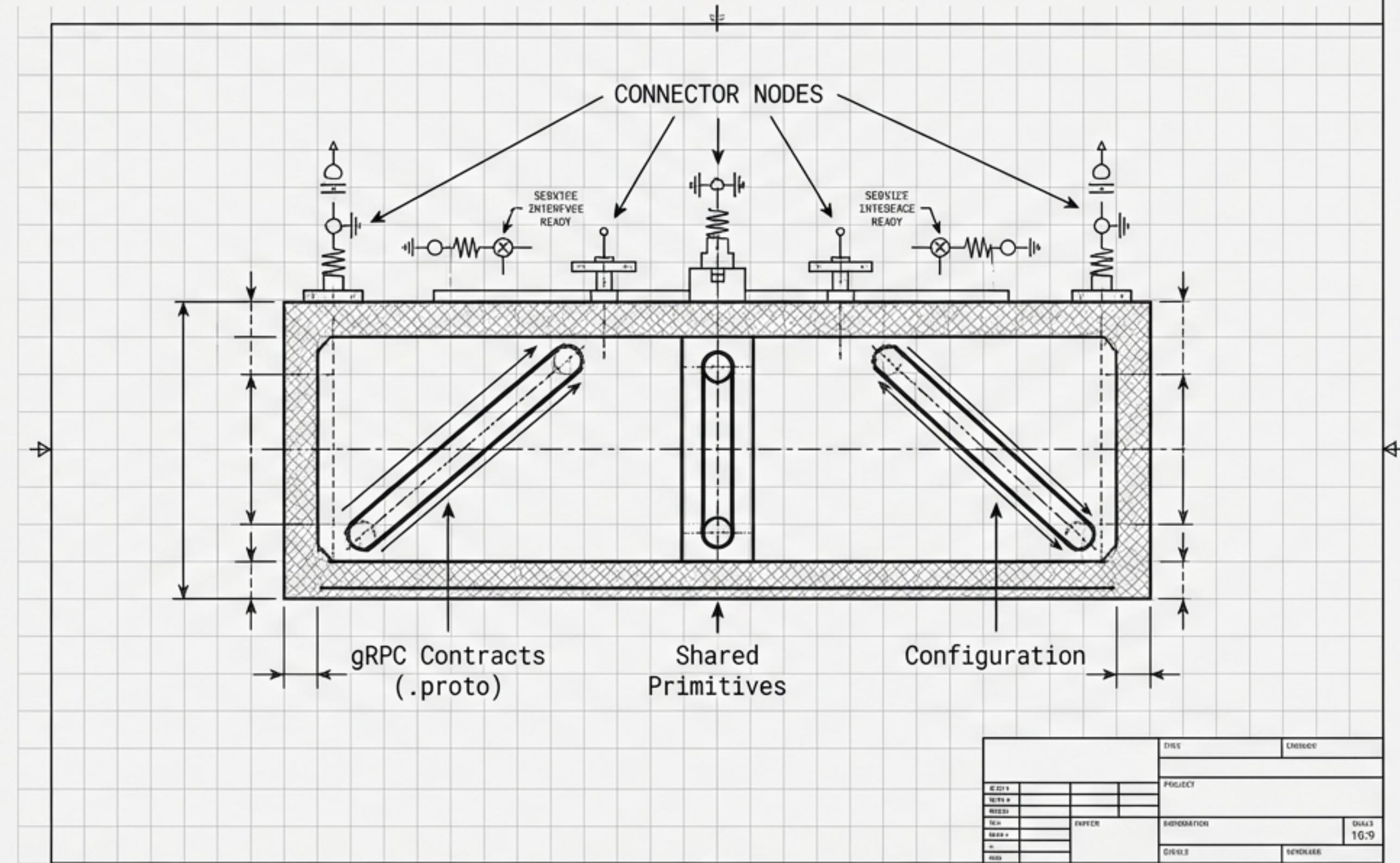
Infrastructure Zero

Rule 1: Zero Business Logic. Pure Infrastructure.

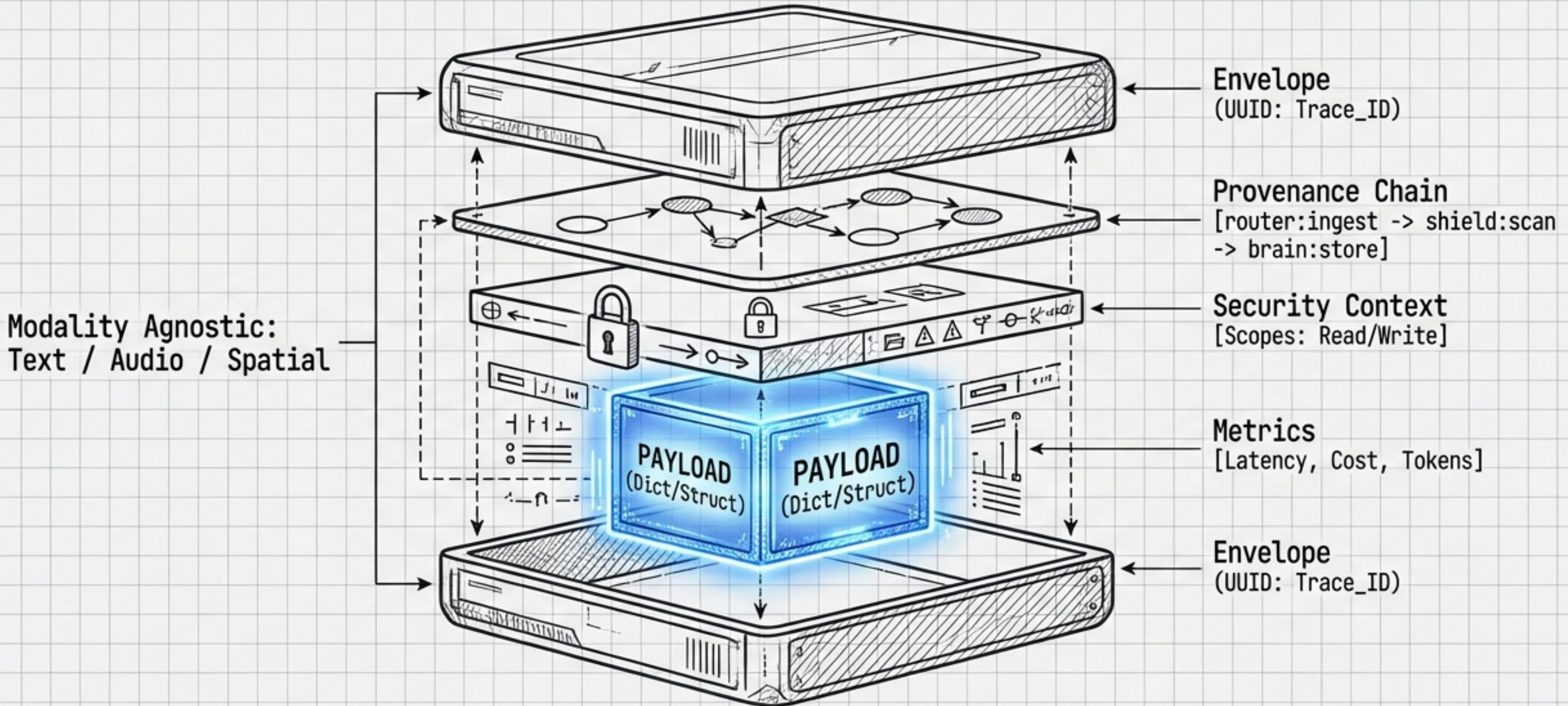
Rule 2: Strict Contracts via Protobuf.

Rule 3: Limited Dependencies: grpcio, protobuf, pydantic.

Output: Unified Structured Logging & Telemetry.

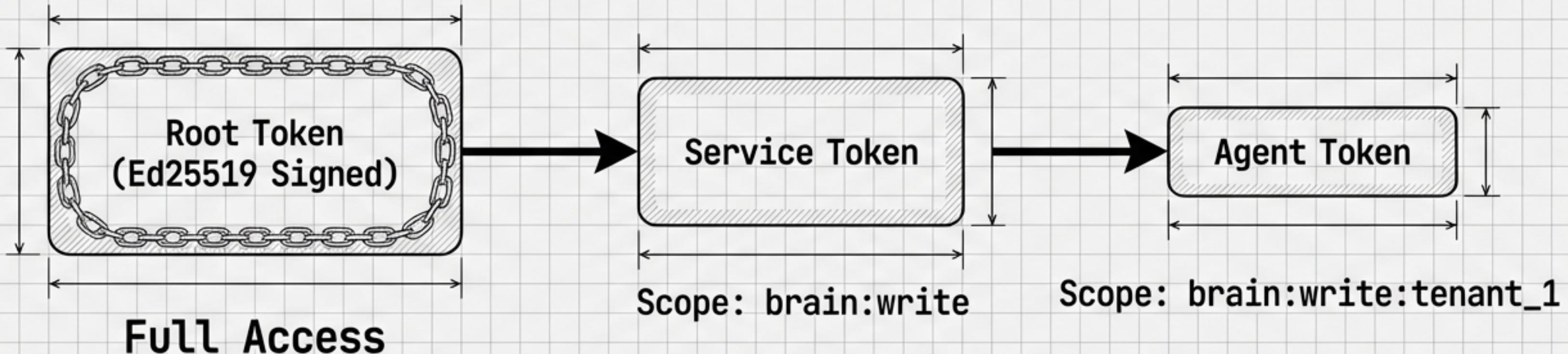


The Universal Protocol: ContextUnit



Every atomic unit of data is traceable, measurable, and secure.

Identity & Access: The ContextToken



Key Concepts

- Capability-Based Security (Not Identity-Based)
- Verification: Public Key Only (No DB Lookup)
- Attenuation: Permissions can only shrink, never grow.
- Scope Syntax: {domain}:{action}:{resource}

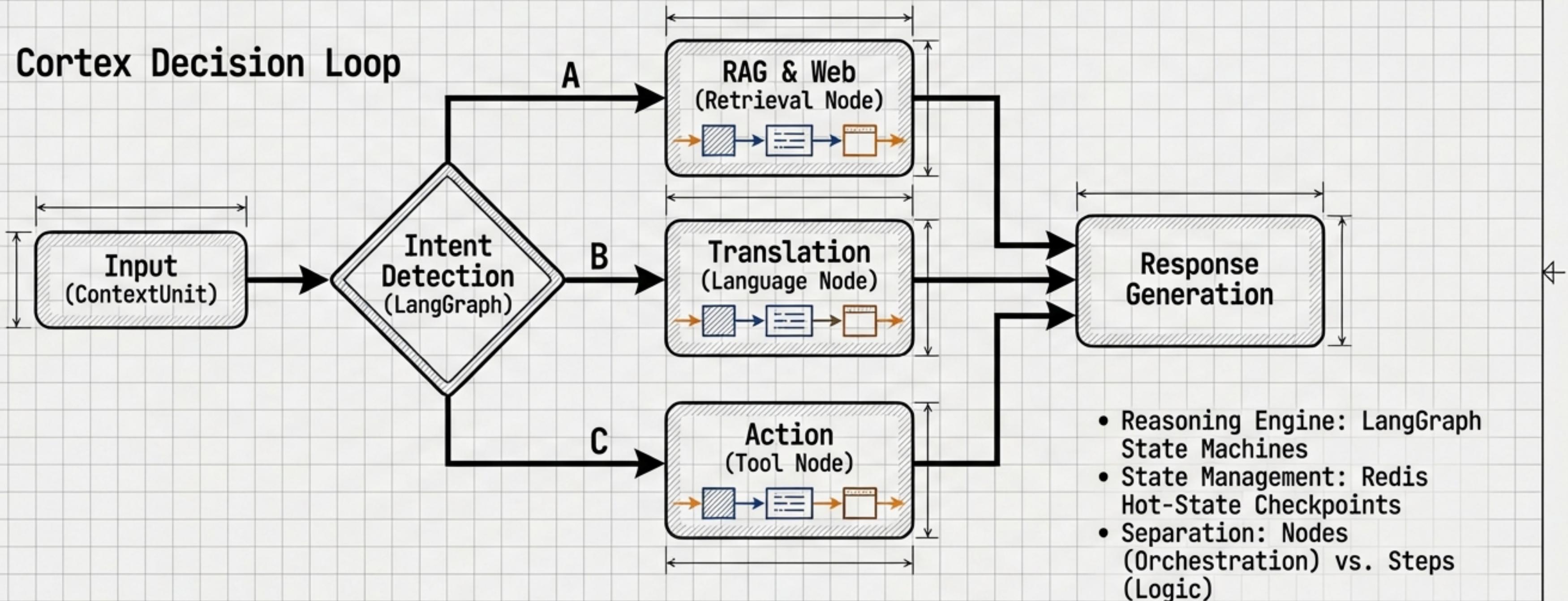
Token				Token
Role				Role
Perm				Perm
Object				Object
Attr				Attr

Access:

Description:	Jetson's Roe:	908
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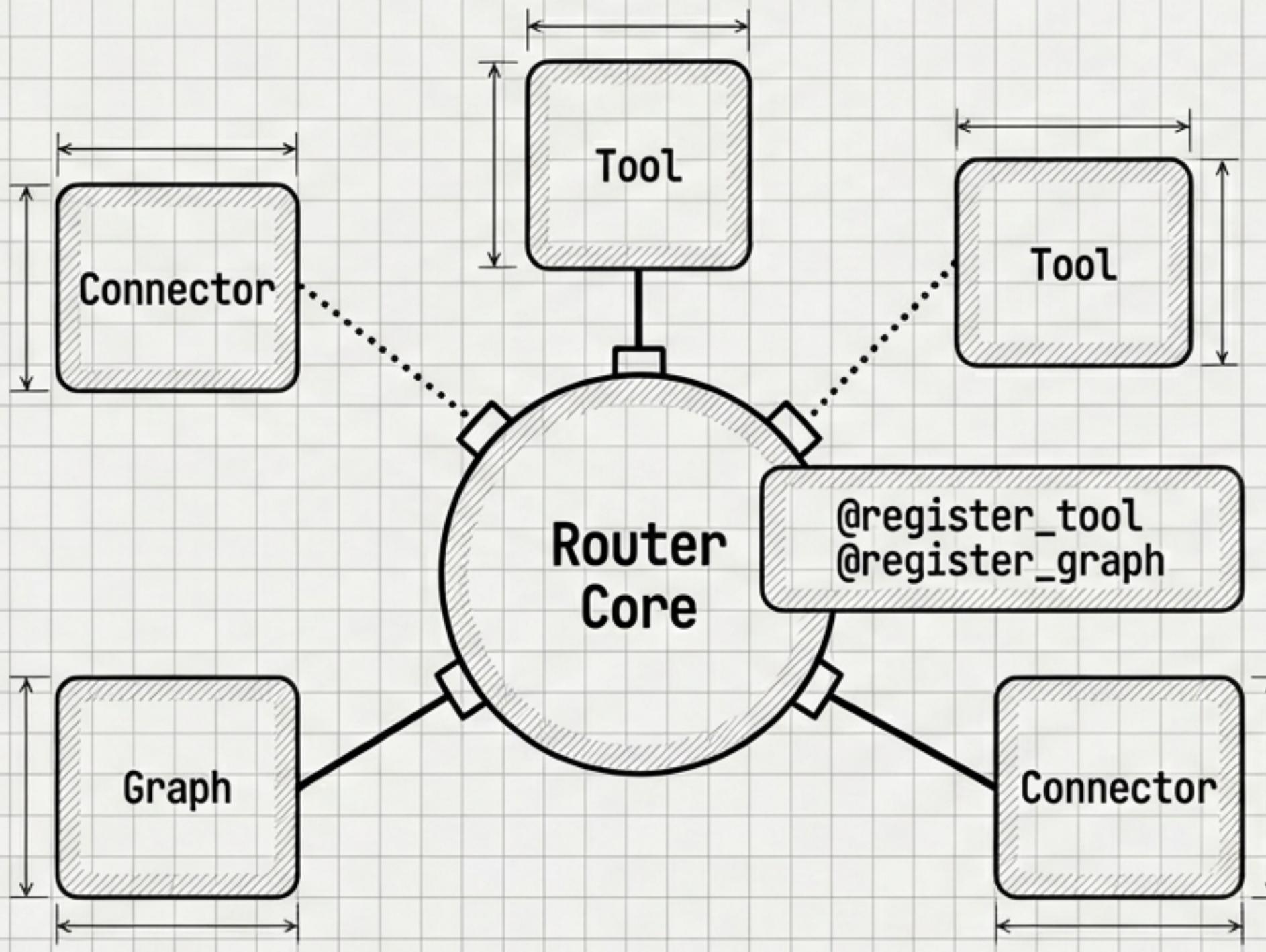
The Mind: ContextRouter & Cortex

Cortex Decision Loop



Field	Value	Field	Value
Field1	Value1	Field2	Value2
Field3	Value3	Field4	Value4
Field5	Value5	Field6	Value6
Field7	Value7	Field8	Value8
Field9	Value9	Field10	Value10
Field11	Value11	Field12	Value12
Field13	Value13	Field14	Value14
Field15	Value15	Field16	Value16
Field17	Value17	Field18	Value18
Field19	Value19	Field20	Value20
Field21	Value21	Field22	Value22
Field23	Value23	Field24	Value24
Field25	Value25	Field26	Value26
Field27	Value27	Field28	Value28
Field29	Value29	Field30	Value30
Field31	Value31	Field32	Value32
Field33	Value33	Field34	Value34
Field35	Value35	Field36	Value36
Field37	Value37	Field38	Value38
Field39	Value39	Field40	Value40
Field41	Value41	Field42	Value42
Field43	Value43	Field44	Value44
Field45	Value45	Field46	Value46
Field47	Value47	Field48	Value48
Field49	Value49	Field50	Value50
Field51	Value51	Field52	Value52
Field53	Value53	Field54	Value54
Field55	Value55	Field56	Value56
Field57	Value57	Field58	Value58
Field59	Value59	Field60	Value60
Field61	Value61	Field62	Value62
Field63	Value63	Field64	Value64
Field65	Value65	Field66	Value66
Field67	Value67	Field68	Value68
Field69	Value69	Field70	Value70
Field71	Value71	Field72	Value72
Field73	Value73	Field74	Value74
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Field339	Value339	Field340	Value340
Field341	Value341	Field342	Value342
Field343	Value343	Field344	Value344
Field345	Value345	Field346	Value346
Field347	Value347	Field348	Value348
Field349	Value349	Field350	Value350
Field351	Value351	Field352	Value352
Field353	Value353	Field354	Value354
Field355	Value355		

Dynamic Capabilities: The Registry System

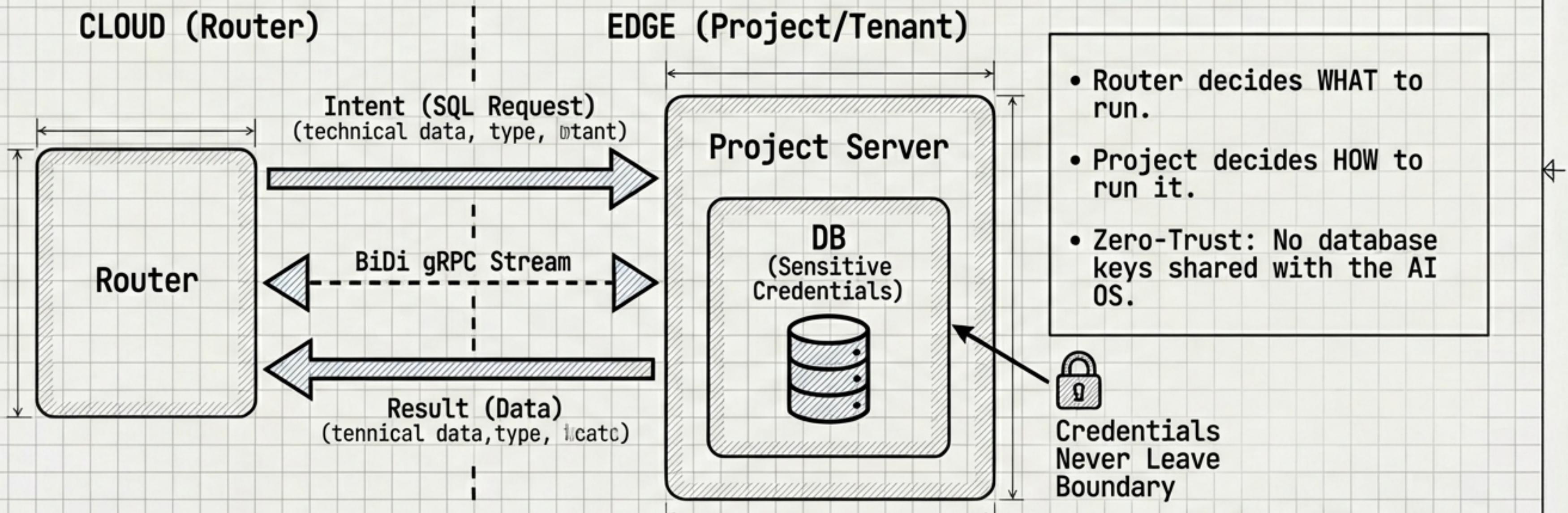


- **Runtime Discovery:** Automatic loading from 'modules/tools'
 - **Hot-Swapping:** No restart required for new logic.
 - **Universal Model Registry:** OpenAI / Vertex / Anthropic / Ollama (Local)
 - **Fallback Strategies:** Sequential -> Parallel -> Cost-Priority

План			ПНЧ:
Анн			
Виль			ФСБРФС:
Концепт			
Мини			
ОБЩИЙ ПЛАН		Плановый Яс:	Зад

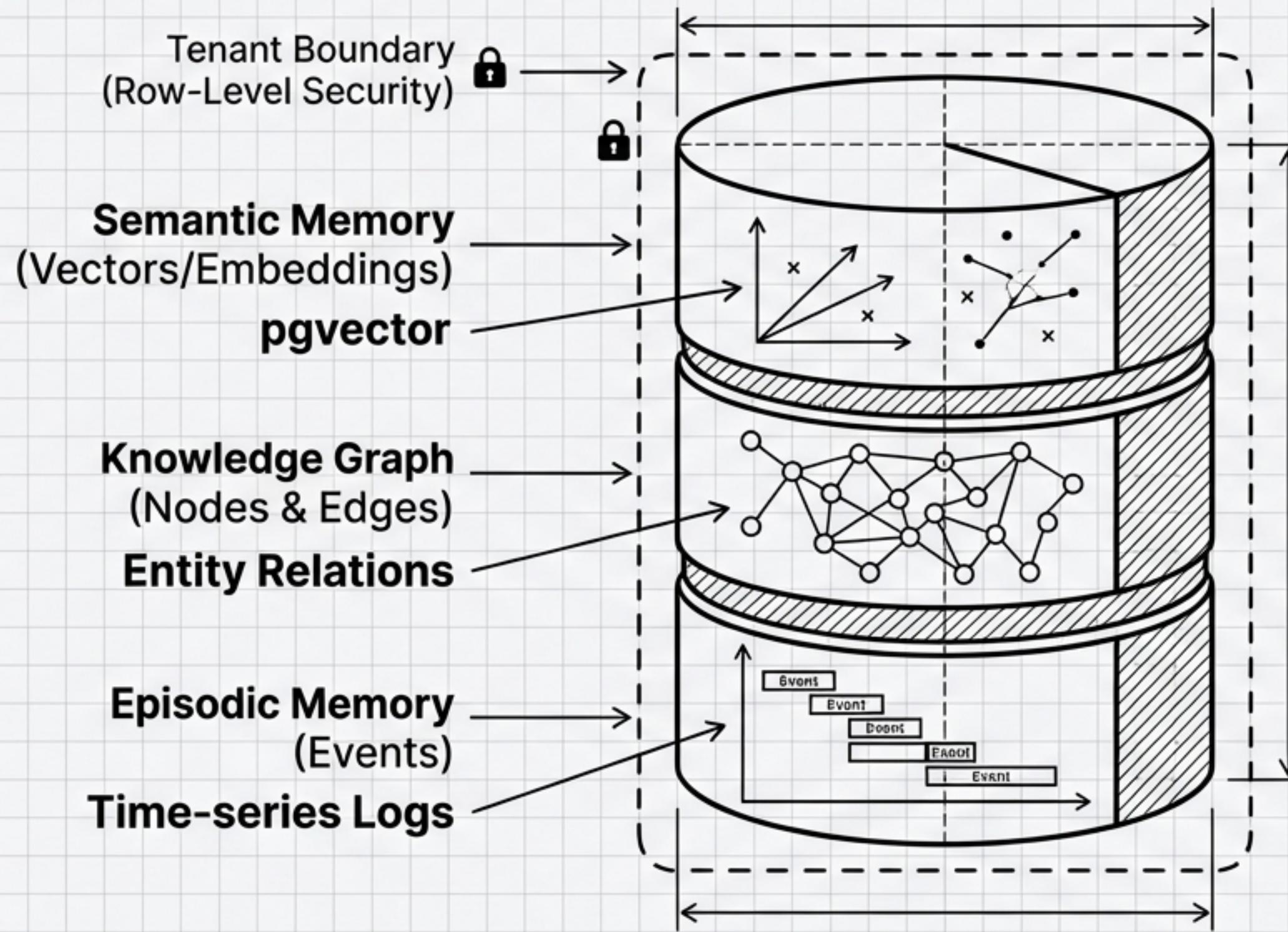
Federated Execution: BiDi Binding

Inversion of Control / Zero-Knowledge Execution



Item	Value	Item	Value
Item A	Value A	Item B	Value B
Item C	Value C	Item D	Value D
Item E	Value E	Item F	Value F
Item G	Value G	Item H	Value H
Item I	Value I	Item J	Value J
Item K	Value K	Item L	Value L
Item M	Value M	Item N	Value N
Item O	Value O	Item P	Value P
Item Q	Value Q	Item R	Value R
Item S	Value S	Item T	Value T
Item U	Value U	Item V	Value V
Item W	Value W	Item X	Value X
Item Y	Value Y	Item Z	Value Z

The Memory: ContextBrain



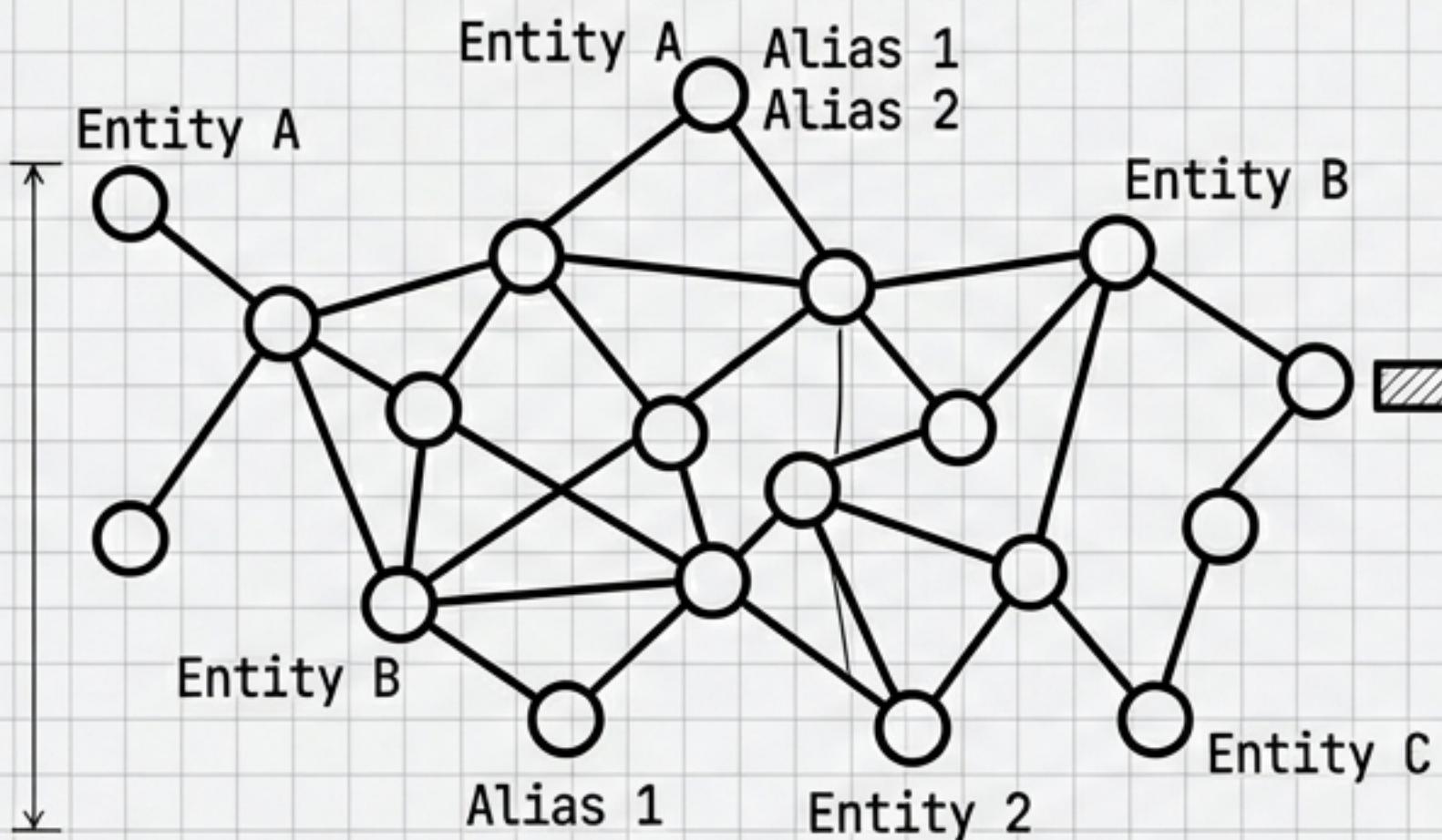
Unified Storage:
PostgreSQL +
Extensions

Caching:
Redis-backed
Embedding Cache
(emb:{sha256})

Procedural Memory:
Stored Skills

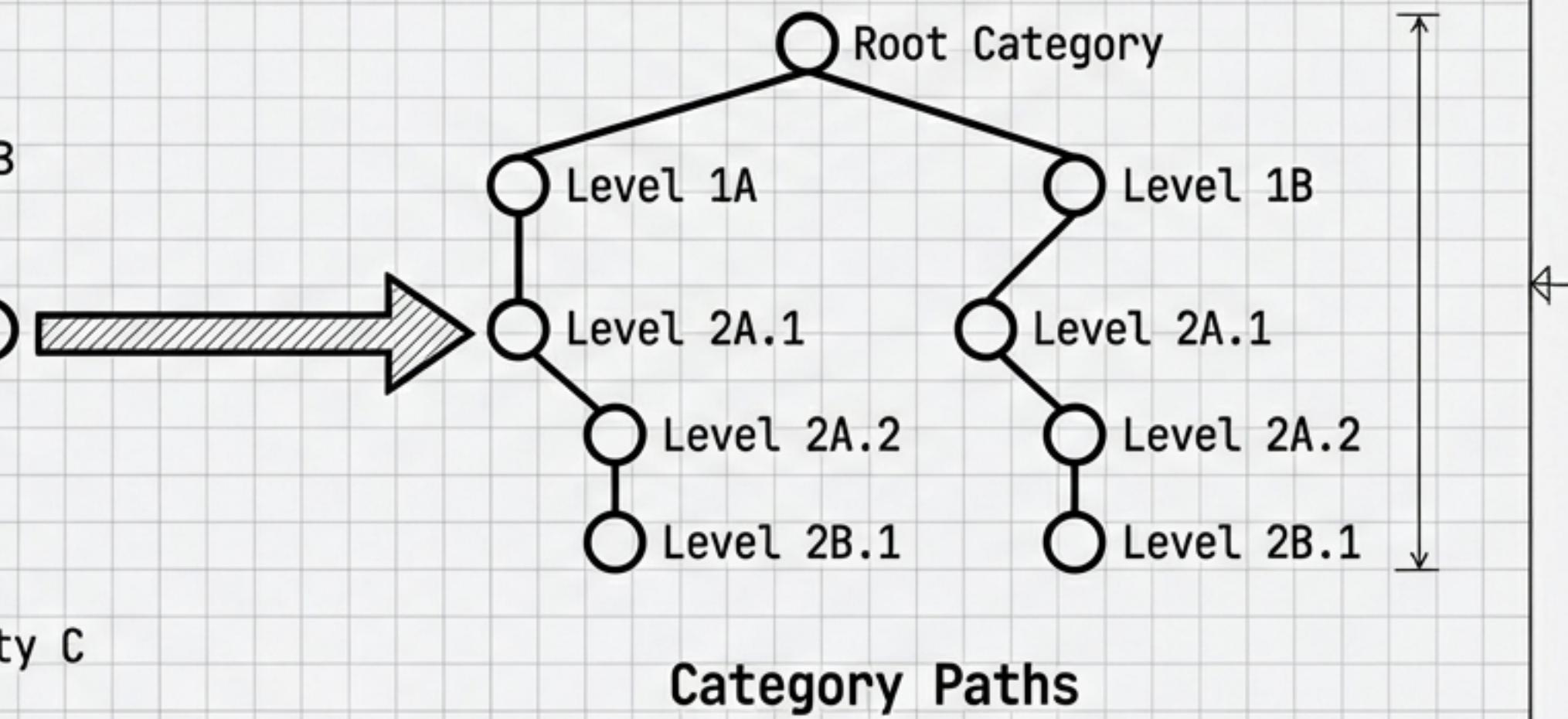
Structured Knowledge & Taxonomy

Knowledge Graph (Relations)



Entity Aliases & Synonyms

Taxonomy (ltree)



Category Paths

PostgreSQL Extensions: pgvector, ltree, uuid-ossp
Isolation: SET LOCAL app.current_tenant

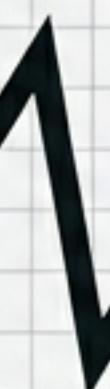
The Hands: ContextWorker

Durable Execution

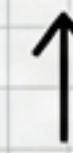
Task Start



System Restart / Failure



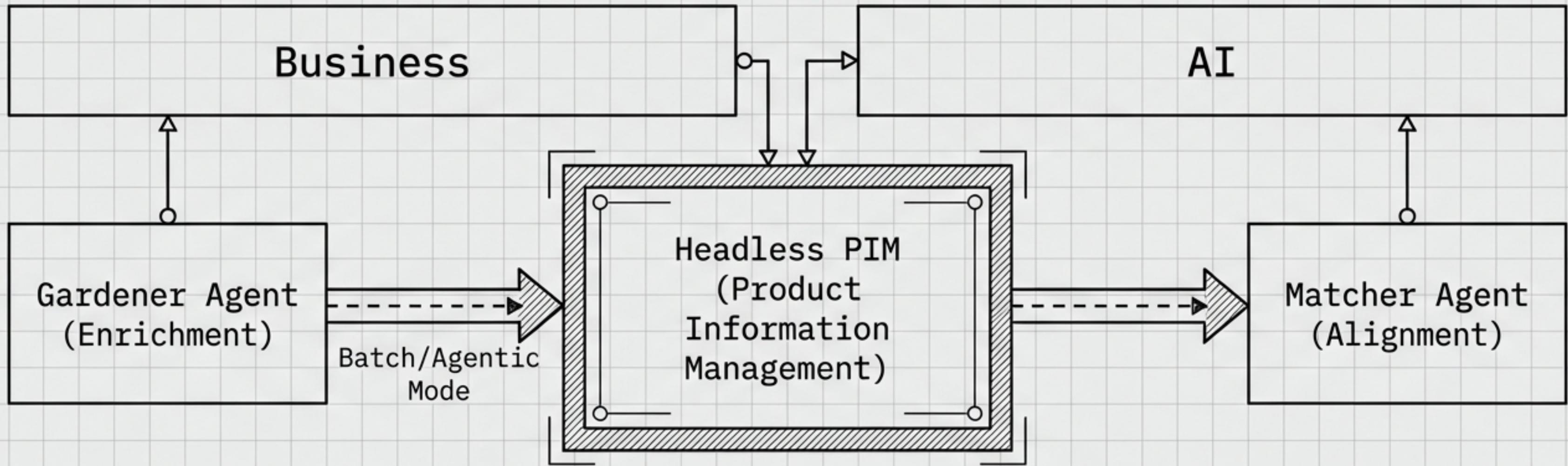
Resume State



Temporal Workflow Integration

Mode A: Harvester (Heavy Data Ingestion)
Mode B: Agent Registry (Background Polling)

The Domain: ContextCommerce



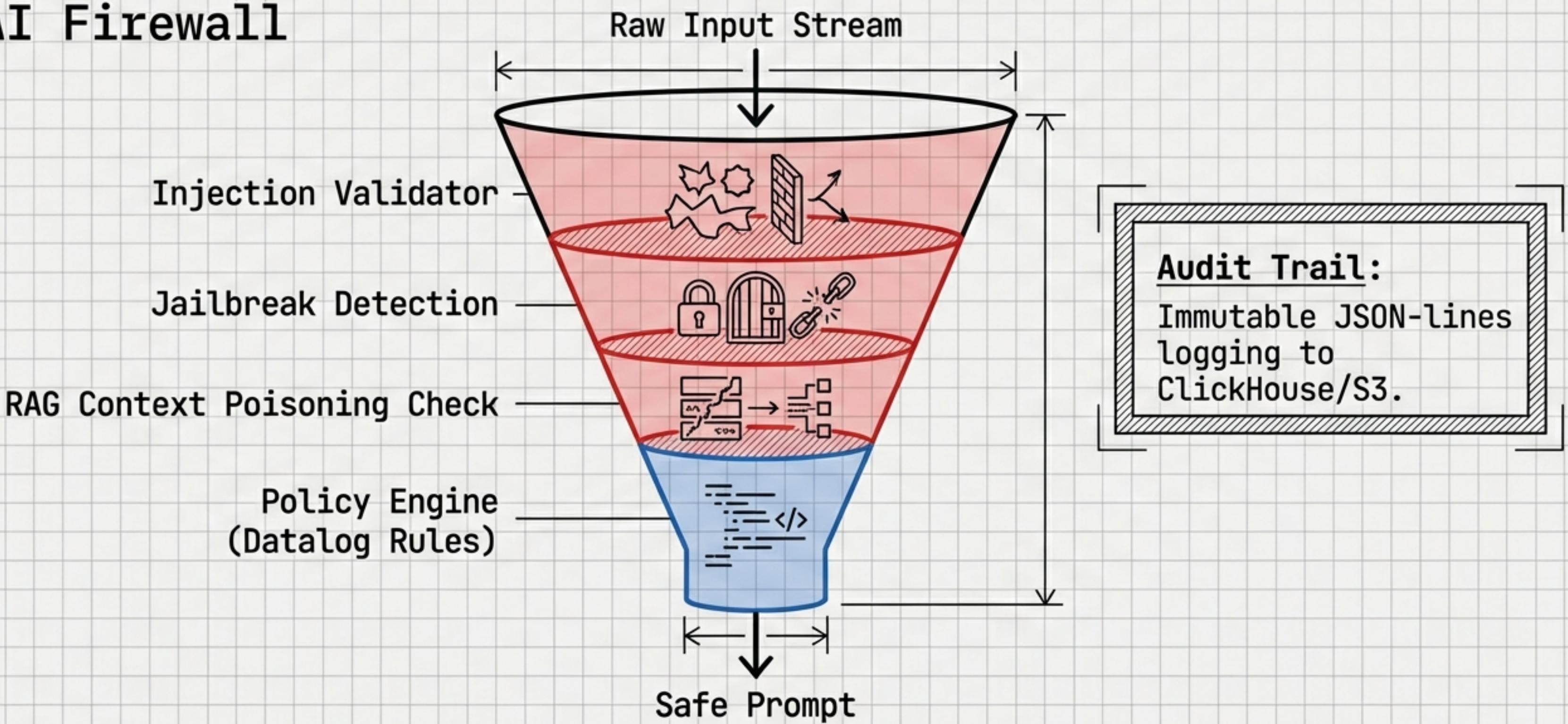
Process List:

- Batch Mode: High Volume (2-5s/item)
- Agentic Mode: Complex Reasoning (10-30s/item)
- Manual Mode: Human-in-the-Loop Review

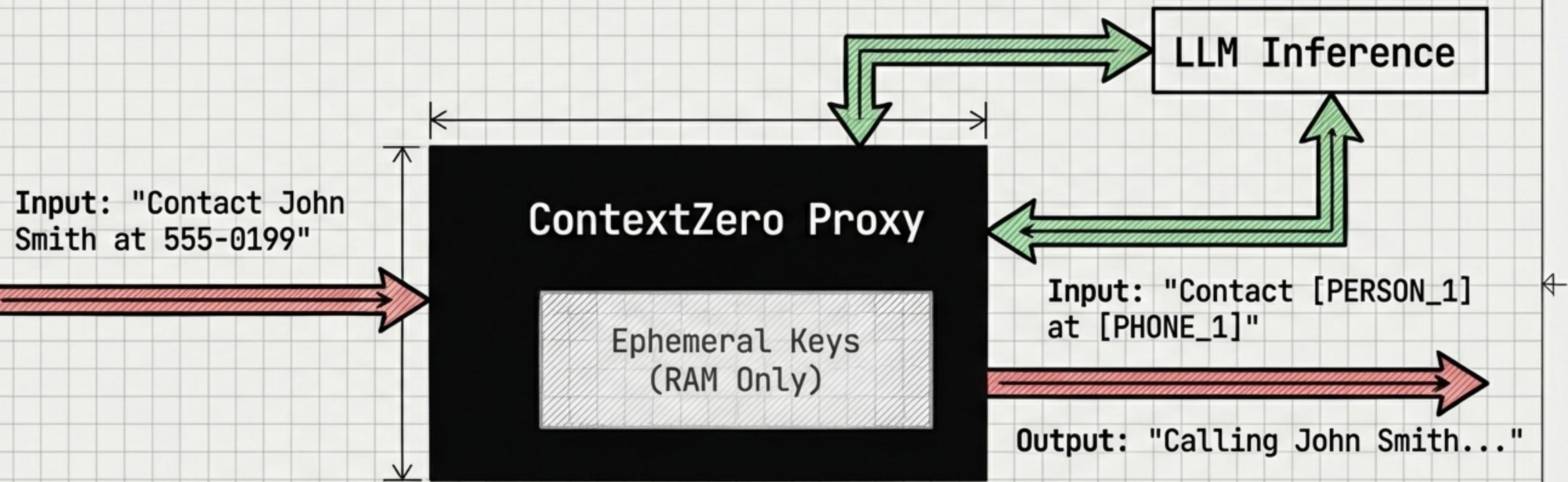
The Platform provides the Tools.
The Domain provides the Taxonomy.

The Immune System: ContextShield

AI Firewall



The Privacy Proxy: ContextZero

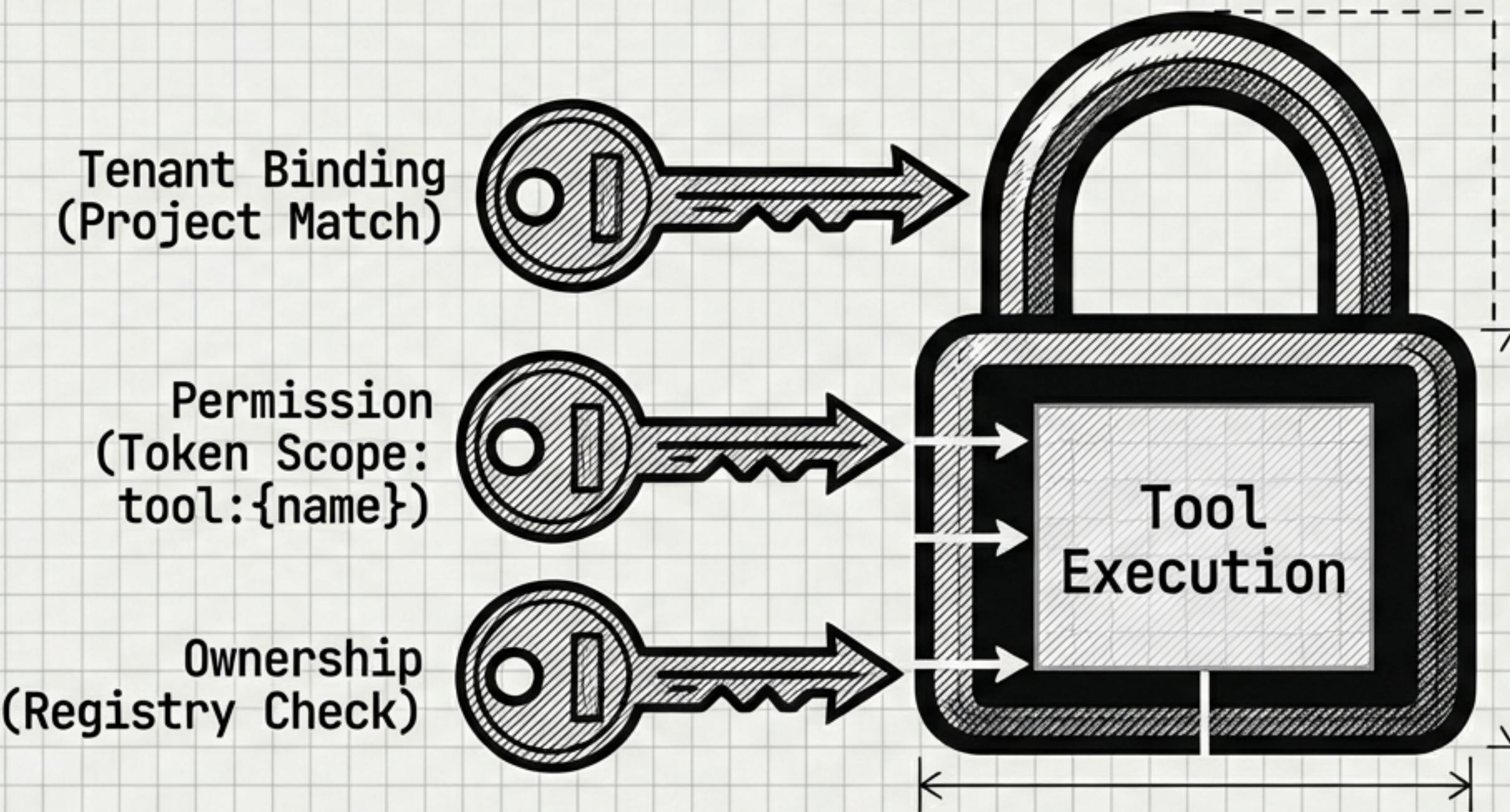


Key Features:

- PII Masking: Regex + Named Entity Recognition
- Deanonymization: Automatic restoration on return
- No Persistence: Keys destroyed post-session

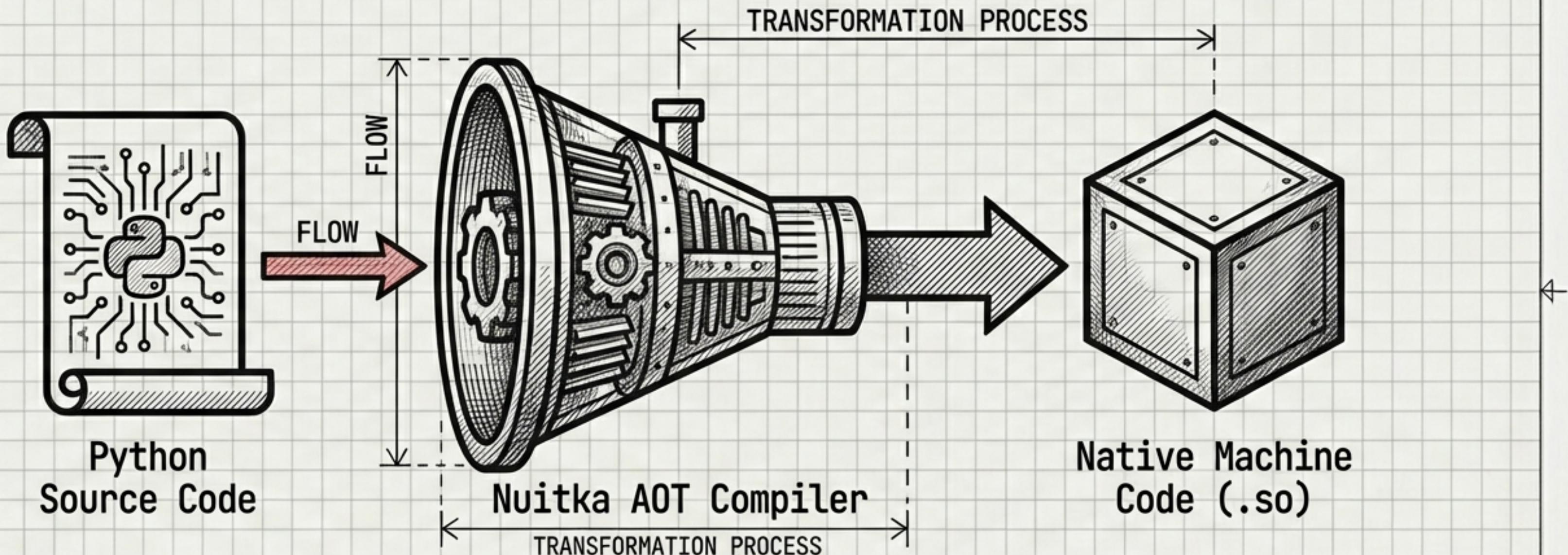
The ContextZero Proxy sanitizes sensitive data before it reaches the AI and restores it in the output, ensuring privacy without compromising functionality.

Secure Tool Enforcement



Fail-Closed Architecture: No Token = No Execution.
Zero-Trust Stream: Authenticated via Shield.

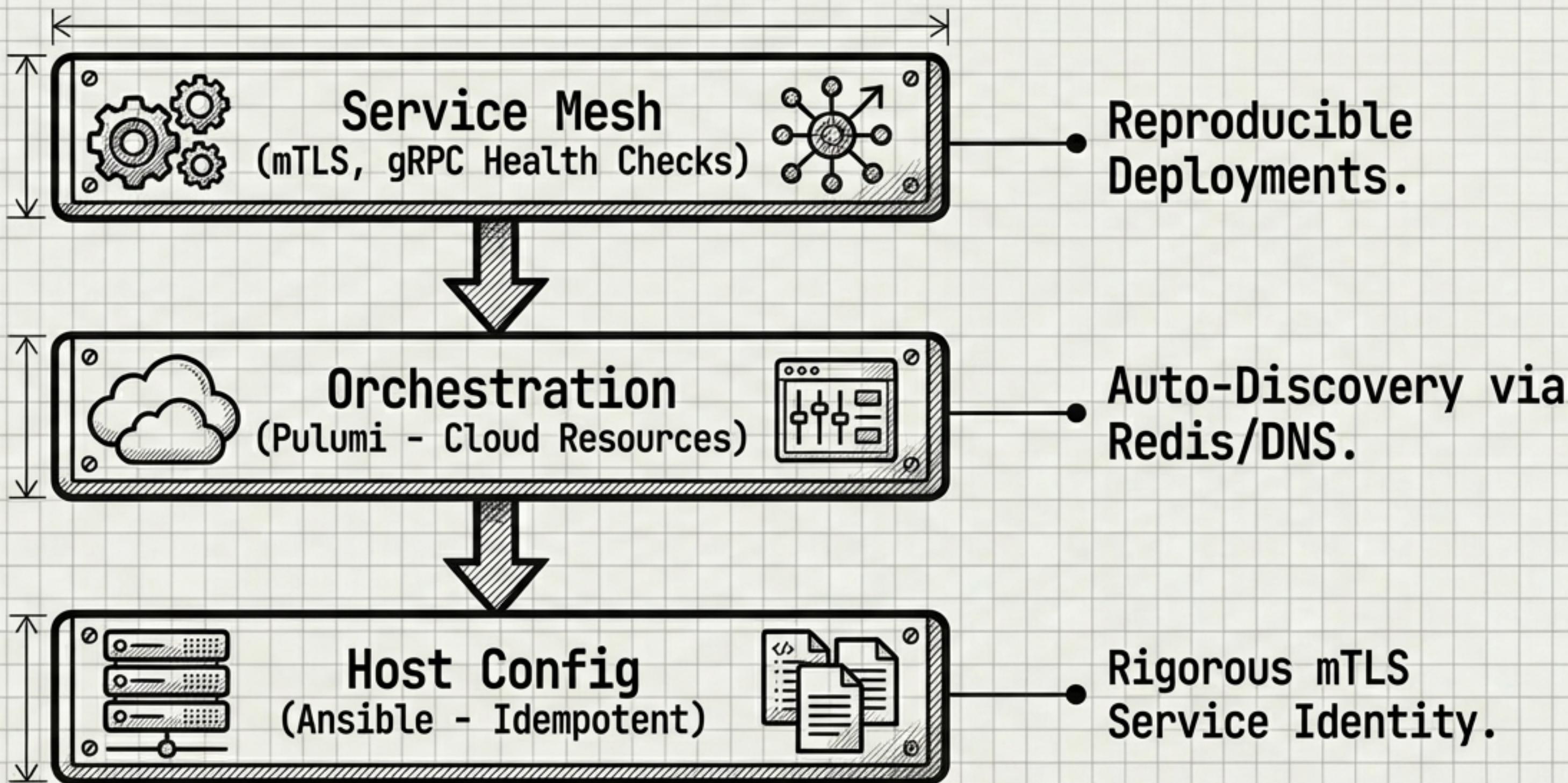
Platform Protection & Licensing



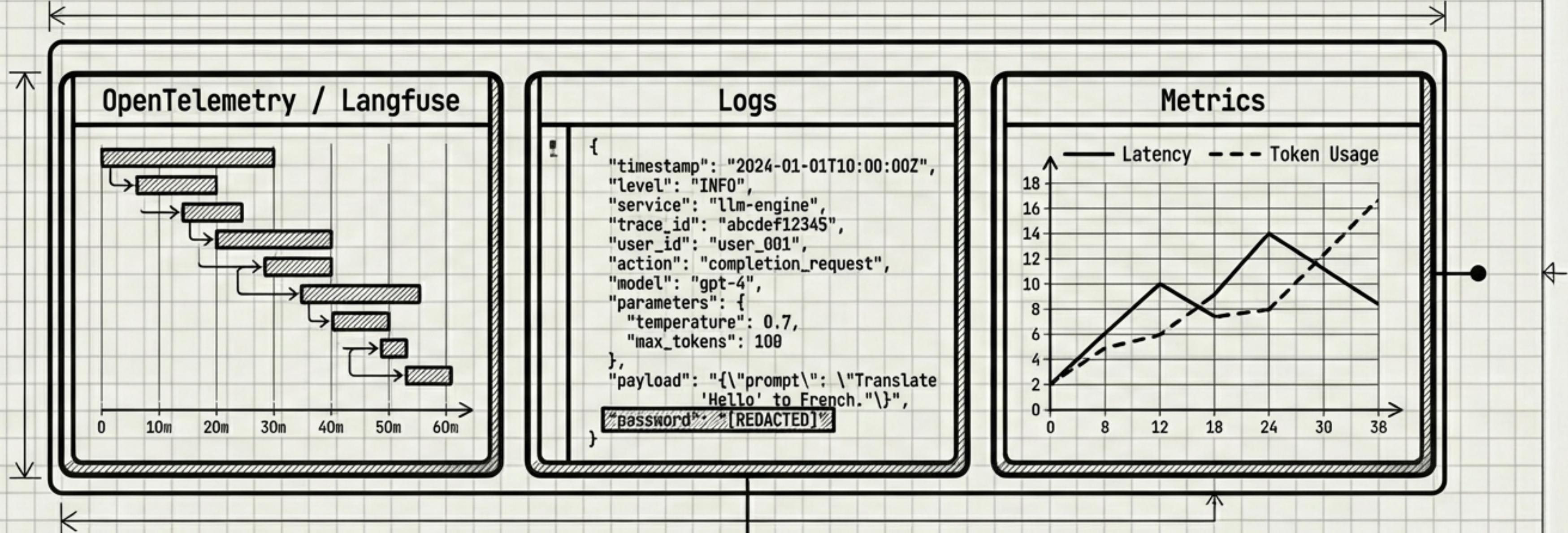
Key Features:

- Binary Distribution: Python bytecode stripped.
- Hardened Architecture: Critical modules (Shield, Zero) compiled.
- Licensing: Ed25519 Signed JSON Verification.

Infrastructure as Code

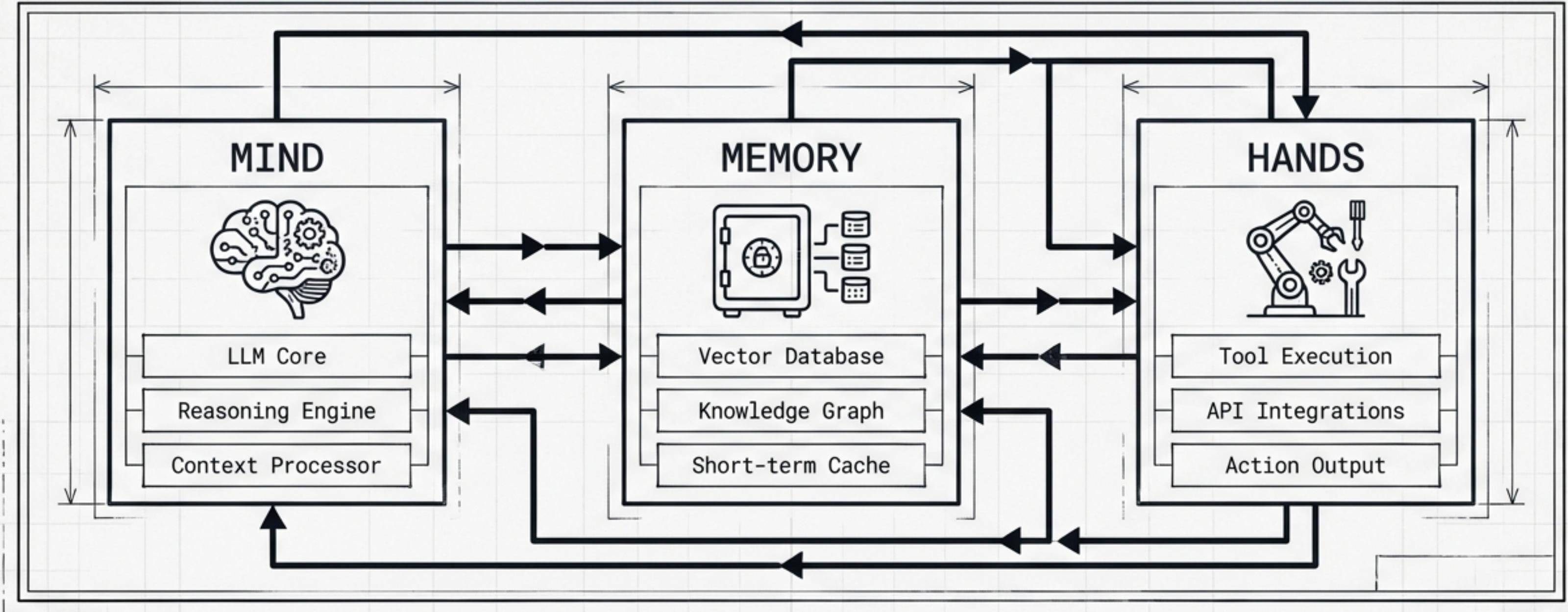


Observability & Telemetry



- 👁️ Deep Introspection of LLM Reasoning.
- 🕸️ Distributed Tracing across Service Boundaries.
- 🔒 Structured JSON Logging with Secret Redaction.

The Complete Digital Entity



UNIVERSAL. SECURE. SOVEREIGN.

A unified, programmable AI Operating System.