



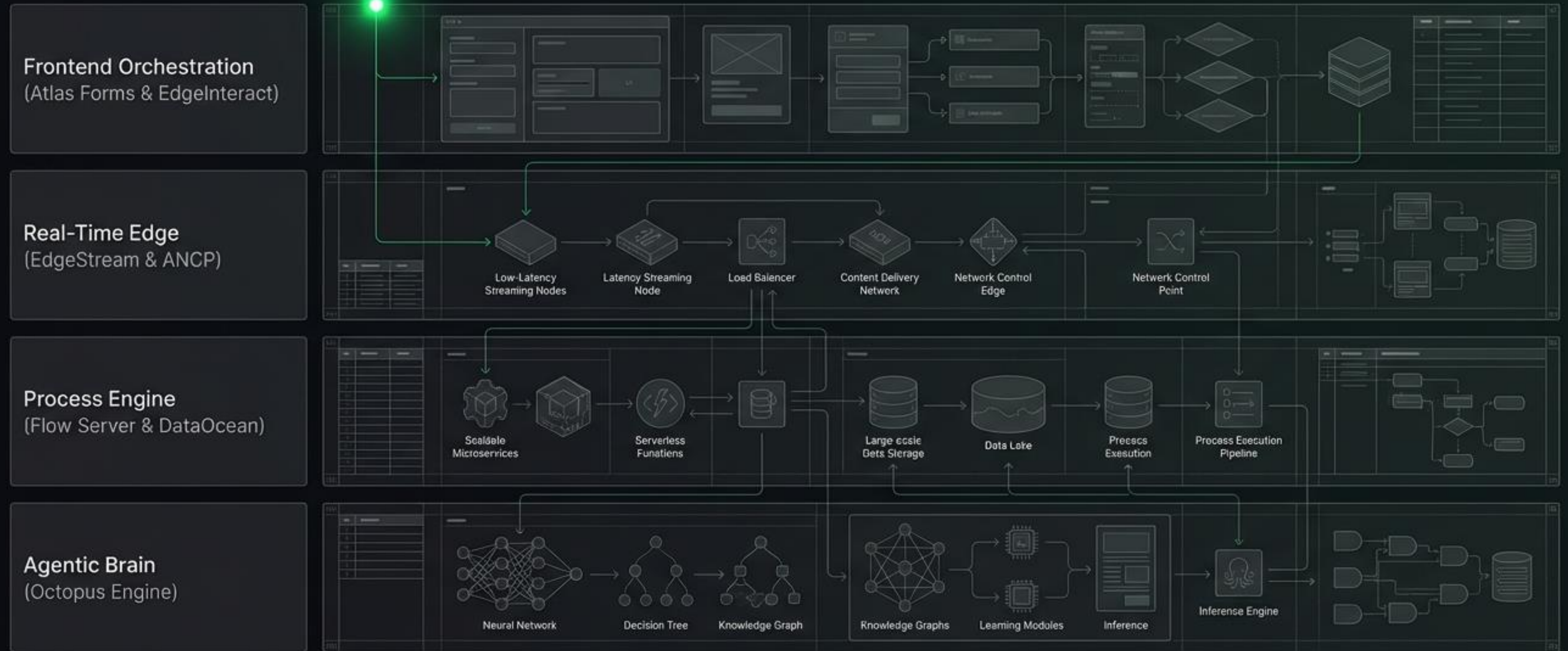
# The Life of a Message

Tracing a single interaction from browser to AI orchestration through the BizFirstAi Architecture.

A Technical Walkthrough

# The Architectural Blueprint

17 integrated modules. 500+ API endpoints. Sub-100ms latency. We will navigate this ecosystem by following a single user input.



# The Spark: Atlas Forms

User interacts with a React host app powered by Atlas Forms.



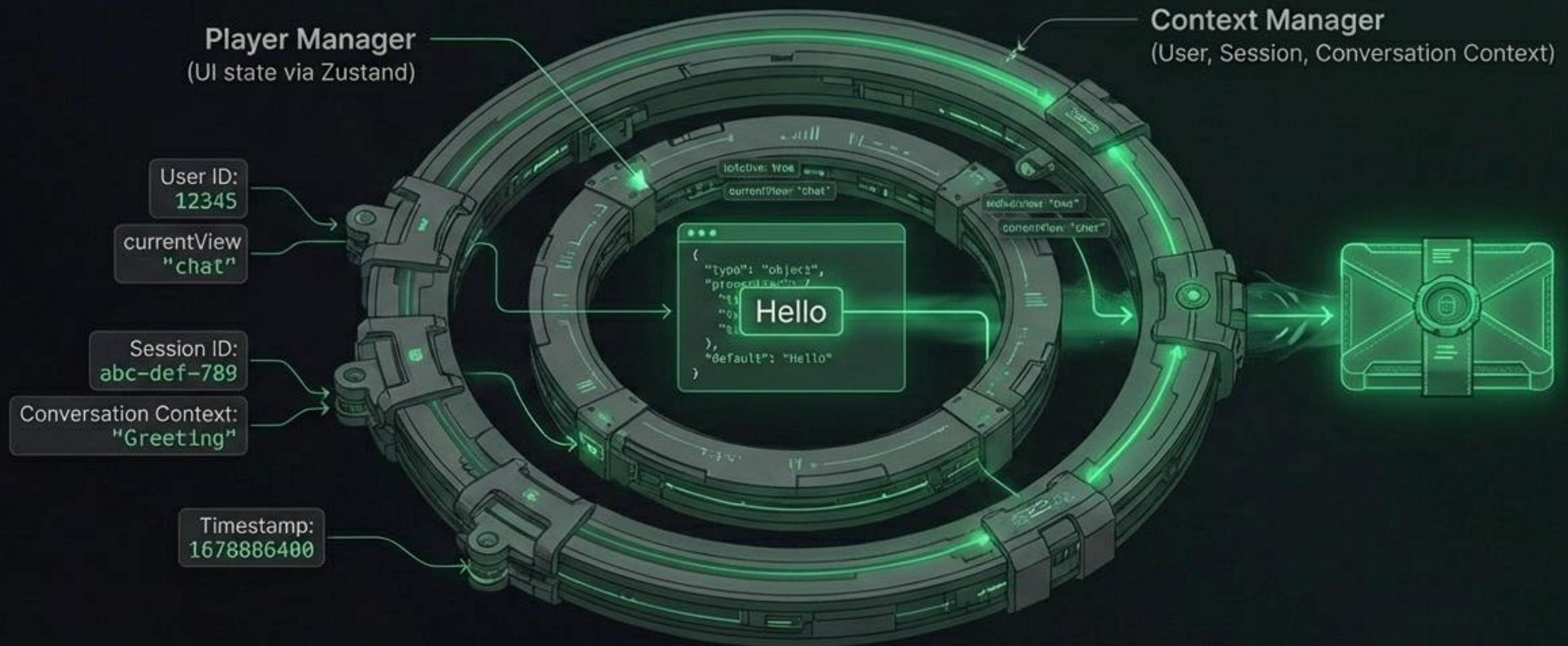
```
{
  "type": "object",
  "properties": {
    "firstName": {
      "type": "string",
      "title": "First Name",
      "description": "User's given name",
      "minLength": 1,
      "maxLength": 50,
      "pattern": "^[A-Za-z]+$",
      "ui:widget": "Input",
      "ui:options": {
        "placeholder": "Enter name",
        "style": {
          "borderColor": "#00C853"
        }
      }
    },
    "default": "Hello"
  }
}
```

89+ enterprise-grade form controls, entirely driven by JSON schema (Agnostic to devices, zero hardcoded business logic).

**Key Takeaway:** The 'Hello' string is captured natively, ready for orchestration.

# UI Orchestration: EdgeInteract

EdgeInteract's Three-Manager architecture ensures "Hello" isn't just a string, but a state-aware interaction tied to a specific user and session.



# The Client Pipeline: EdgeStream

>10,000 msg/sec throughput with sub-100ms latency.



# The Protocol Bridge: ANCP

EdgeStream hands the processed payload to the Agentic Node Communication Protocol (ANCP).



## Format

Packaged via CloudEvents or DidComm formats.

## Auth

Secured via multi-auth (JWT, API Key, or Decentralized Identity/DID).

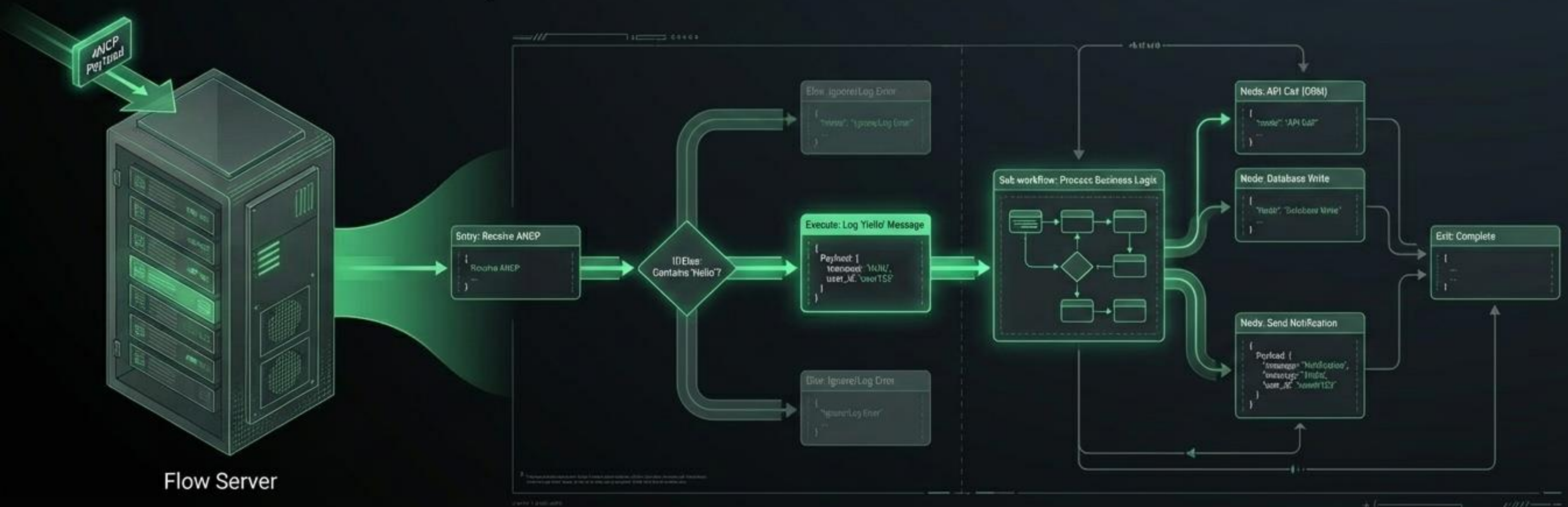
## Transport

Ready for 4 message patterns (Streaming, Request-Reply, Fire-and-Forget, Task-Start).

# The Engine Room: Flow Server & Process Engine

>Executes visual business logic across 60+ execution node types.

- **Flow Server:** Receives the ANCP request.
- **Flow Engine:** Executes visual business logic across 60+ execution node types.
- **Node Autonomy:** A flow node can independently evaluate the 'Hello' message and dynamically call another node or sub-workflow based on enterprise rules.



# The System of Record: DataOcean

The Flow Engine interacts directly with DataOcean for business logic validation and persistence.

## DataOcean Metrics

- 605+ normalized tables.
- 100% Multi-Tenant Isolation (TenantID enforced at row level).
- Soft-delete and complete ACID compliance.

## Current Interaction

**Action:** The 'Hello' interaction is logged, and previous conversation history is retrieved.



# The Agentic Brain: Octopus Engine

- **Controller Agent:** Receives the input. It evaluates the "Hello" intent and context.
- **Routing Decision:** Standard node logic is bypassed; the message is routed to a Planner Agent for multi-step AI reasoning.
- **State Persistence:** The complex state of both the Flow execution and the Octopus agent interactions are natively maintained on Octopus.



# AI Orchestration & Tooling

**MCP Servers**  
(Model Context Protocol  
for tool calling).

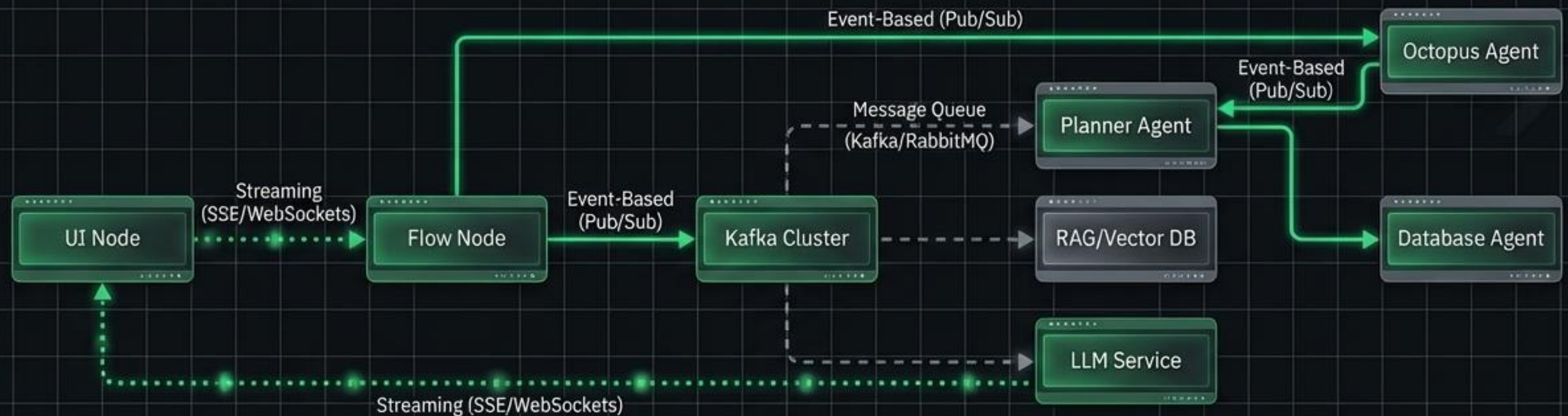
**RAG / Vector DB**  
(Retrieving enterprise  
context for the user).

**LLM Integration**  
(Claude/GPT-4 for  
semantic understanding  
and response  
generation).

**AI Agents**  
(LangChain integration  
for complex, multi-  
agent  
workflows).



# Inter-Node Communication Topologies

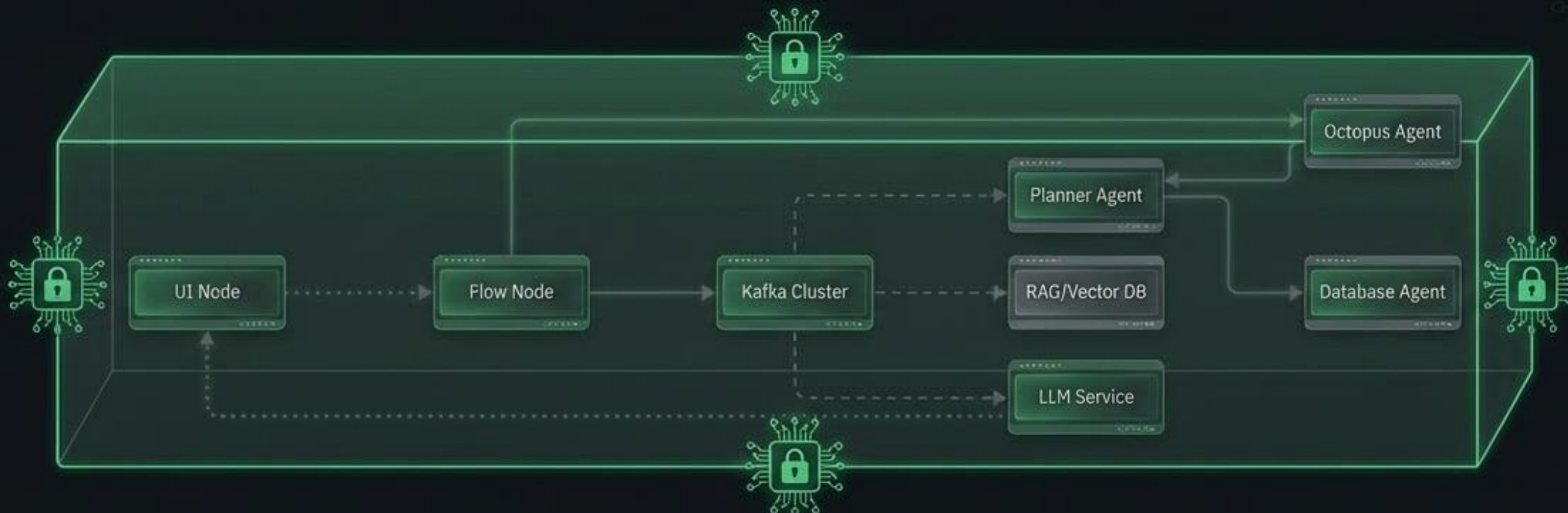


Communication Protocols & Visual Mapping

Line Style	Protocol	Description
	Event-Based (Pub/Sub)	Asynchronous notifications and triggers.
	Message Queue (Kafka/RabbitMQ)	Reliable background processing and high-volume routing.
	Streaming (SSE/WebSockets)	Real-time LLM typing feedback and instant UI updates.

# The Perimeter Shell: Passport

Invisible but omnipresent. No node executes and no agent reasons without Passport authorization.



## SSO (Single Sign-On)

Unified access across all services and tools. Eliminates multiple logins, enhancing security and user experience. Supports various identity providers (IdP) and protocols (SAML, OIDC).

## Identity Management

Centralized user profiles, roles, and lifecycle management. Handles provisioning, de-provisioning, and identity federation. Ensures consistent identity representation.

## Credential Management

Secure storage, rotation, and management of API keys, secrets, and certificates. Utilizes secure vaults and encrypted storage. Automated secret rotation policies.

## 4-Layer Access Management (RBAC/ABAC)

Granular permission controls based on Role-Based Access Control (RBAC) and Attribute-Based Access Control (ABAC). Defines policies at service, resource, and data levels. Ensures principle of least privilege.

# The Omniscient Eye: BizFirst Observe

The telemetry backbone. Every component utilizes BizFirst Observe to track the health, latency, and audit trail of the message.

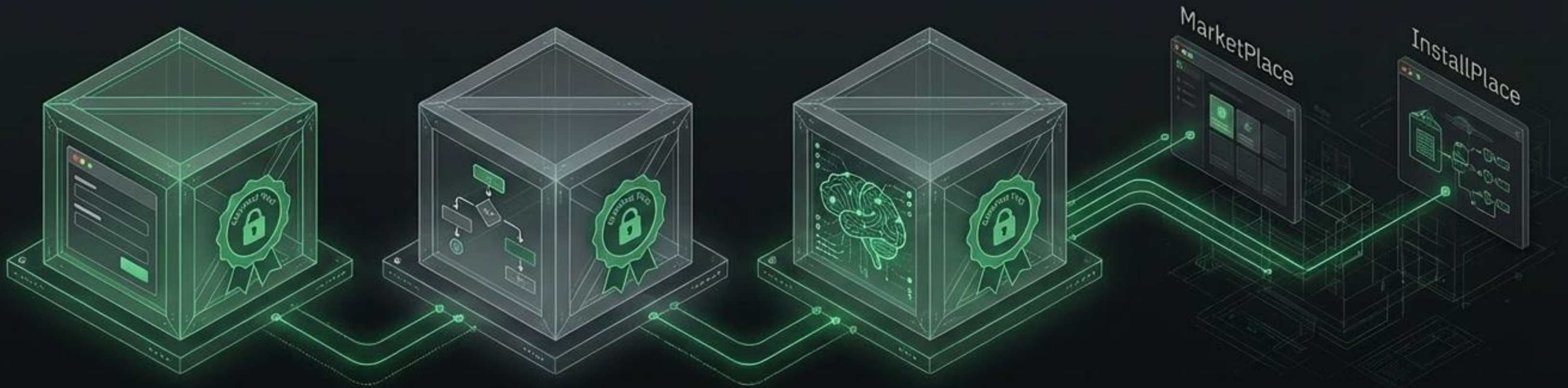
**Tech Stack:** Powered by OpenTelemetry, Prometheus (Metrics), Loki (Logs), and Tempo (Distributed Tracing).



# The Ecosystem: MarketHub & InstallHub

**MarketPlace:** Port, sell, and package components (Forms, Workflows, Agents). **InstallPlace:** Seamless, secure enterprise deployment.

**Governance:** Establishes software/agent trust, cryptographic certification, and monetization tracking.



## Forms

Forms: packaged with UI component to SQL, and project, as used as marketplace cause in user operation.

## Workflows

Workflows: packaged in workflows structures, moz, workflows as design action within the secure deployments.

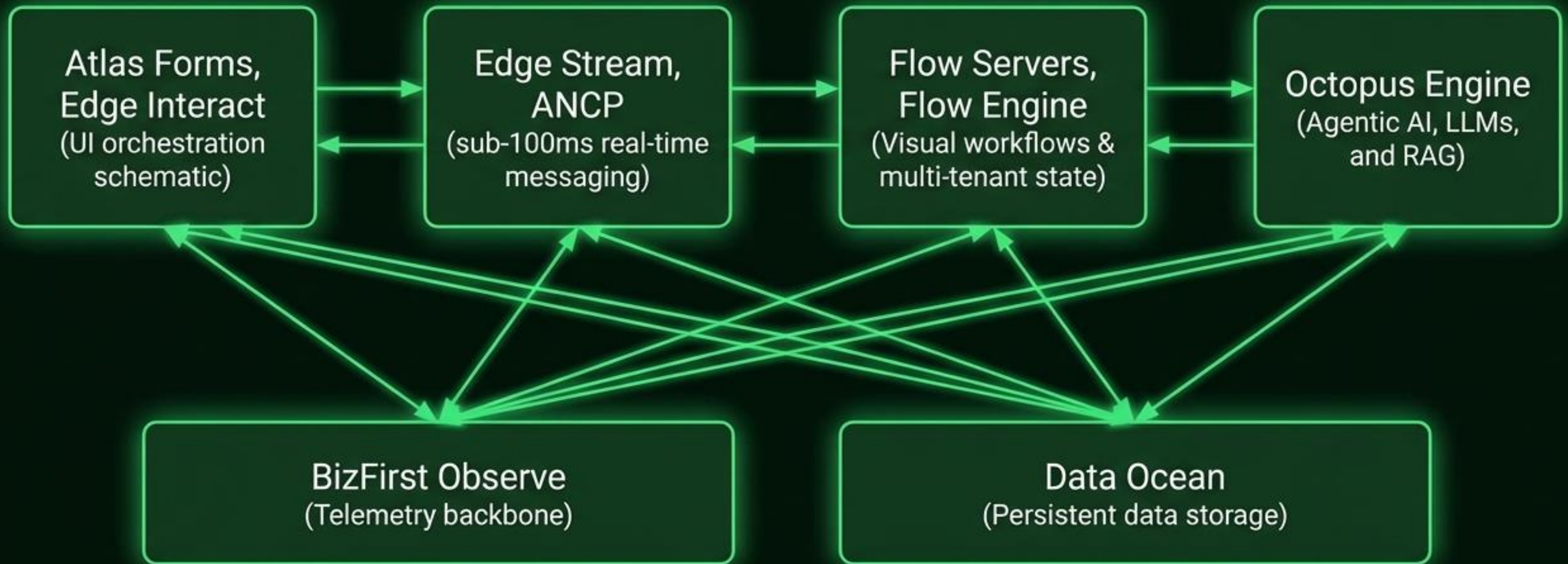
## Agents

Agents: developer users components and reinvention an AI agents, transference certification, and monetization.

## Certified Trust

Certified Trust is created and packaged with cryptographic and certified trusts, including software using monetization.

# Synthesis: The Complete Circuit



A seamless, secure, and observable enterprise platform where AI and visual workflows share the same nervous system.