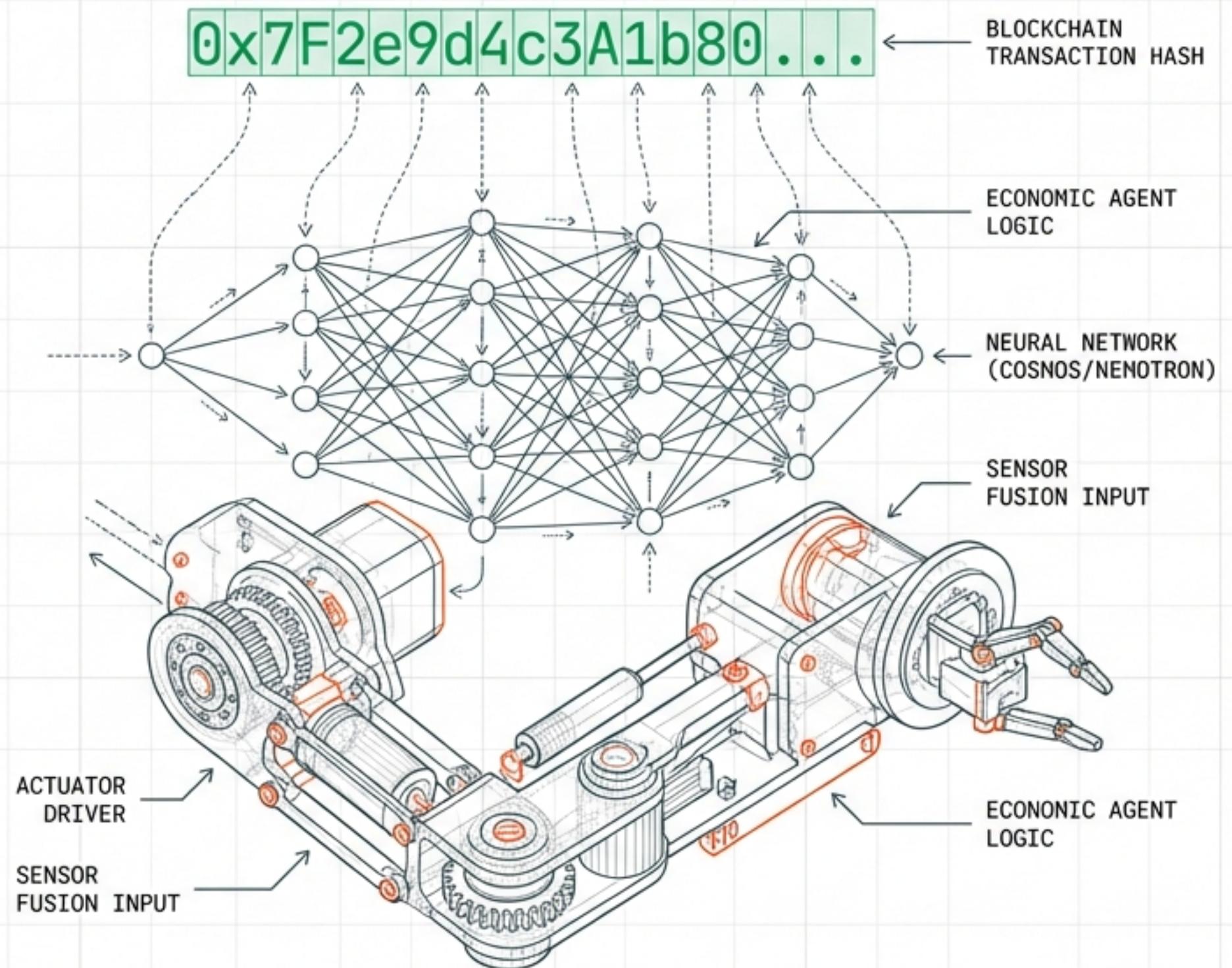


# The Solana Robotics Kit

Building Autonomous,  
Economic Agents on  
NVIDIA Jetson Orin Nano.



**Powered by:**

NVIDIA Isaac

Cosmos & Nemotron

Solana Blockchain

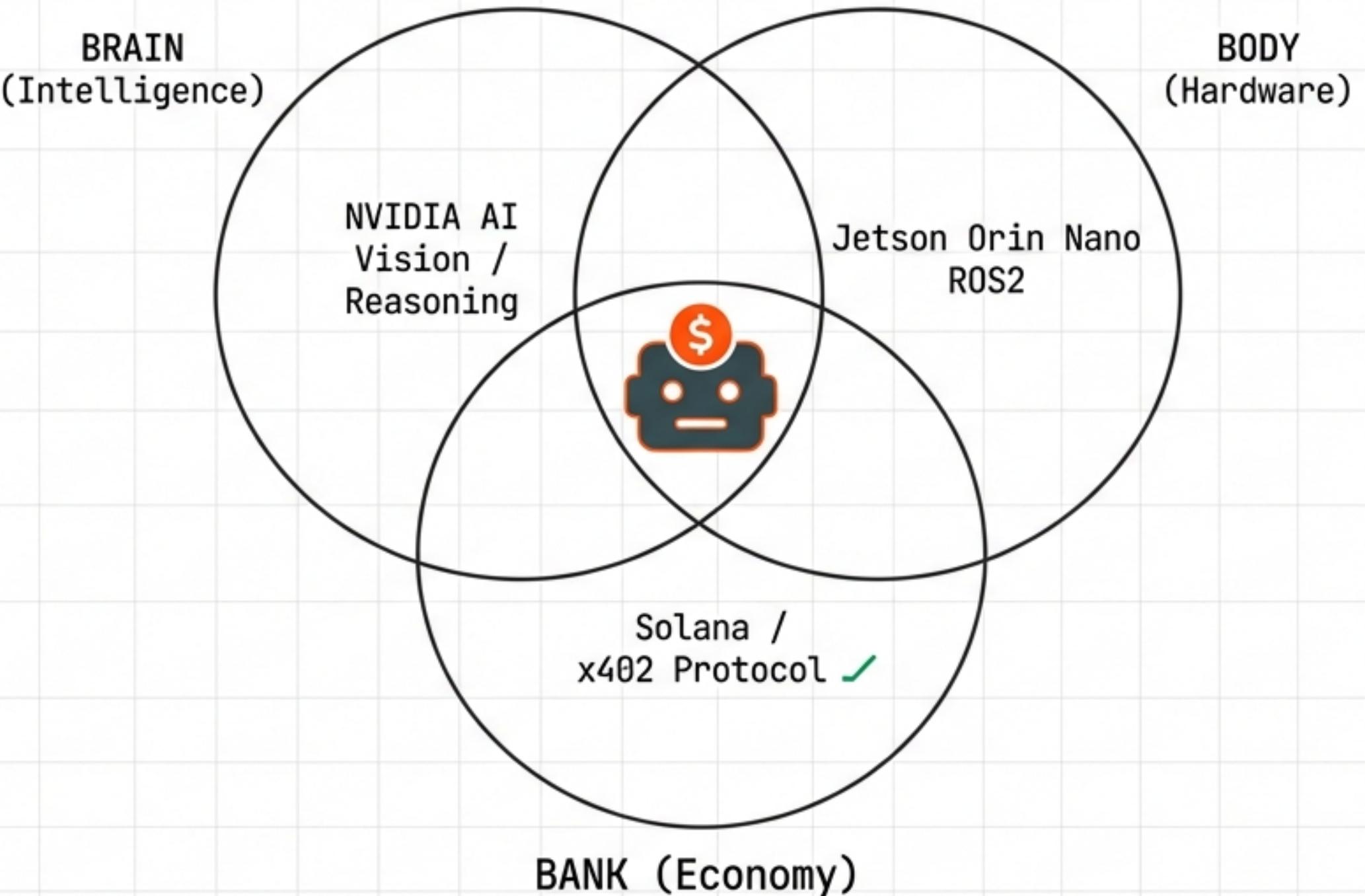
Version 1.0.0-alpha

# THE EMBODIED ECONOMIC AGENT

We are shifting the paradigm from digital chatbots to physical entities.

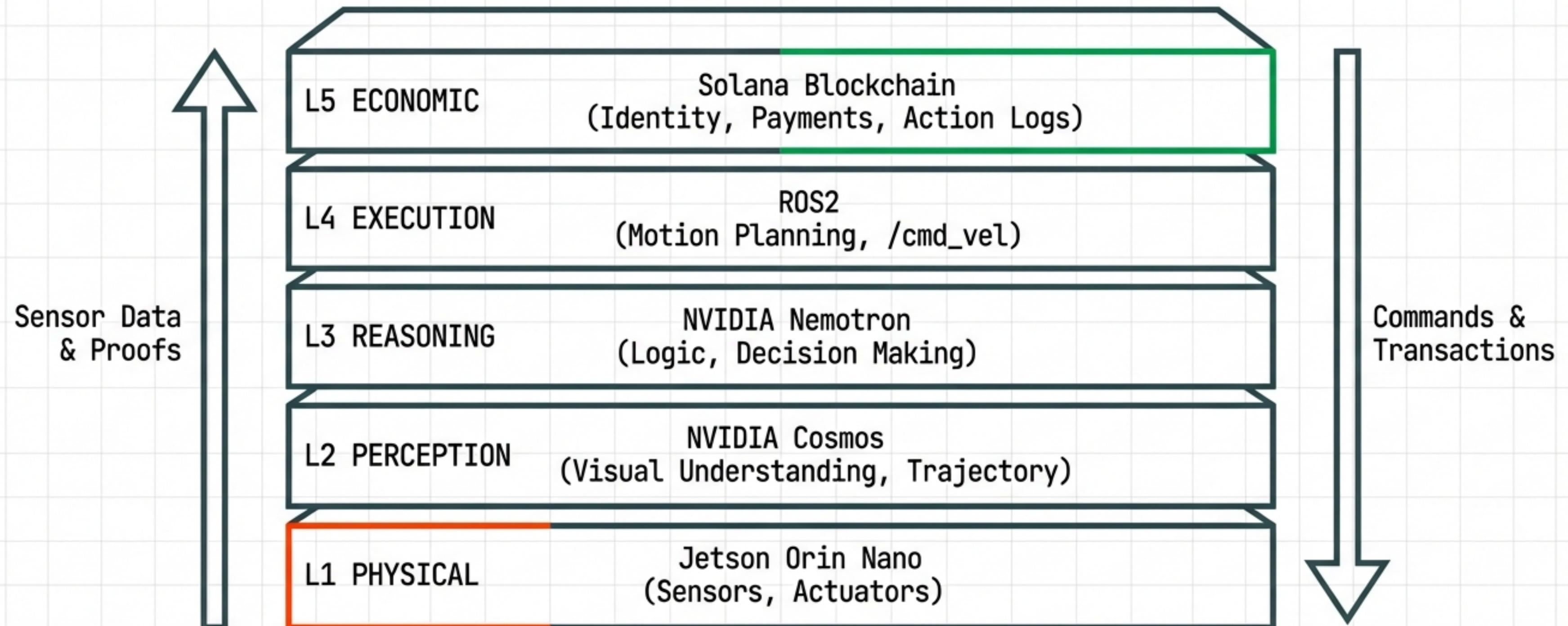
These agents do not just interact with the material world; they interact with the economic world simultaneously.

They perceive, act, and transact.



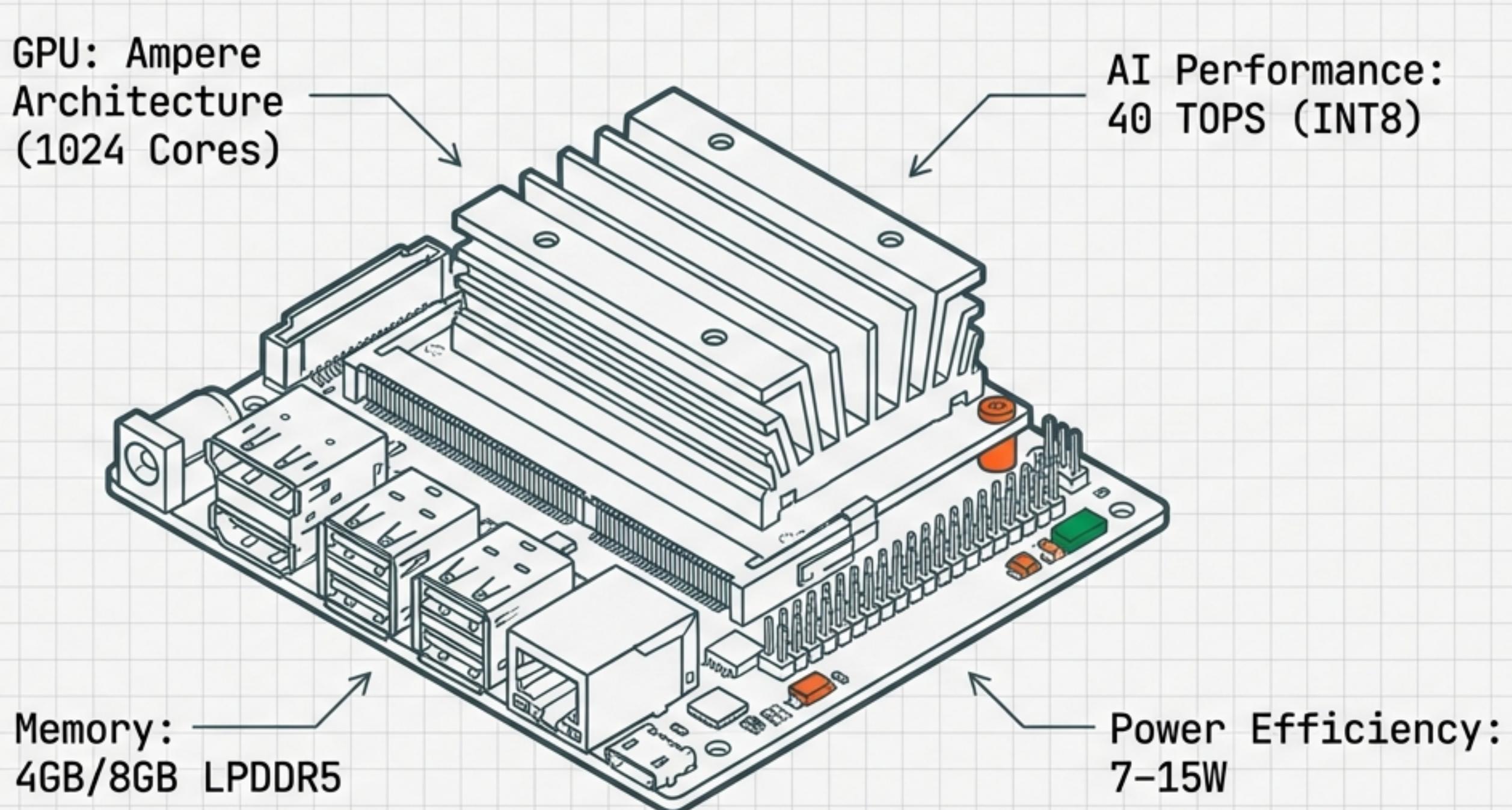
✓ Deliverable: v0.1 Starter Kit. Deploy an agent with a wallet, vision model, and movement controller out of the box.

# Inter Tight: System Architecture: From Silicon to Settlement



# Hardware Baseline: NVIDIA Jetson Orin Nano

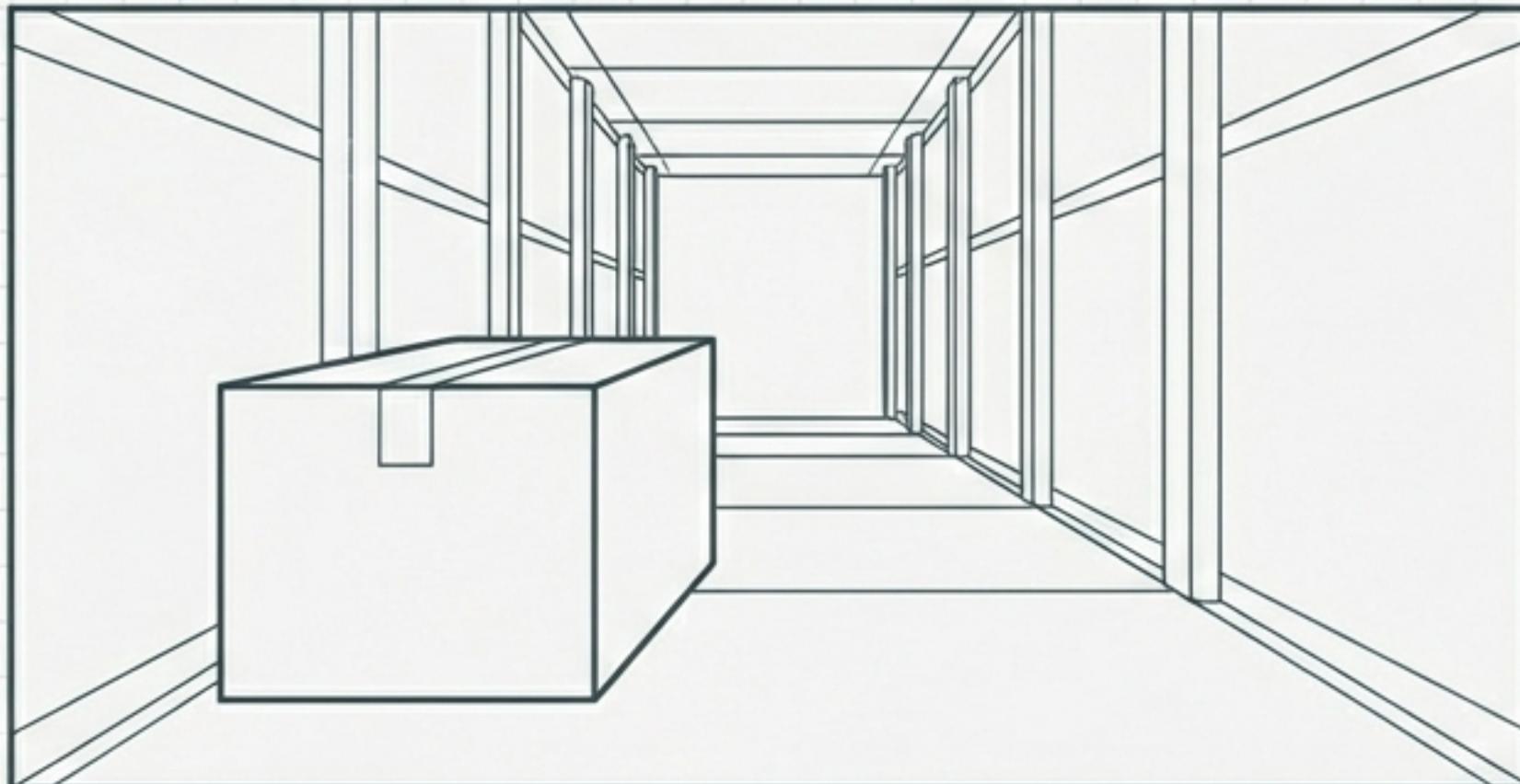
The Sweet Spot for Edge AI. Handles local ROS2 nodes, Isaac ROS acceleration, and safety-critical planning.



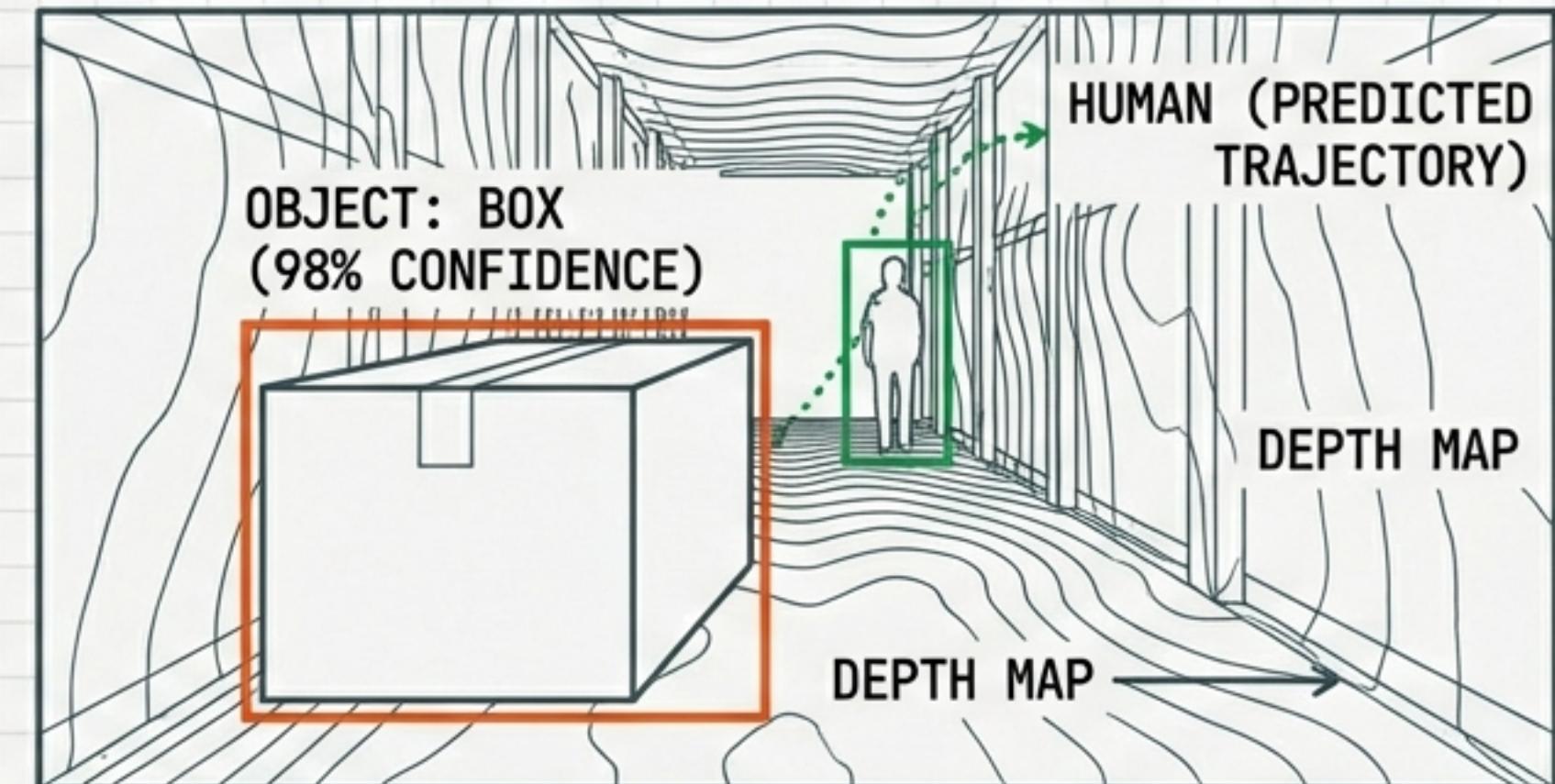
Strategy: Safety-critical loops run on-device. Heavy 30B+ inference offloaded to Cloud/NIM.

# Perceive: Understanding, Not Just Seeing

RAW VISUAL INPUT



COMPUTER VISION ANALYSIS



## VISUAL REASONING

Model: cosmos-reason2-8b.

Function: Identifies objects, hazards, and spatial relationships. (e.g., 'Is this aisle blocked?')

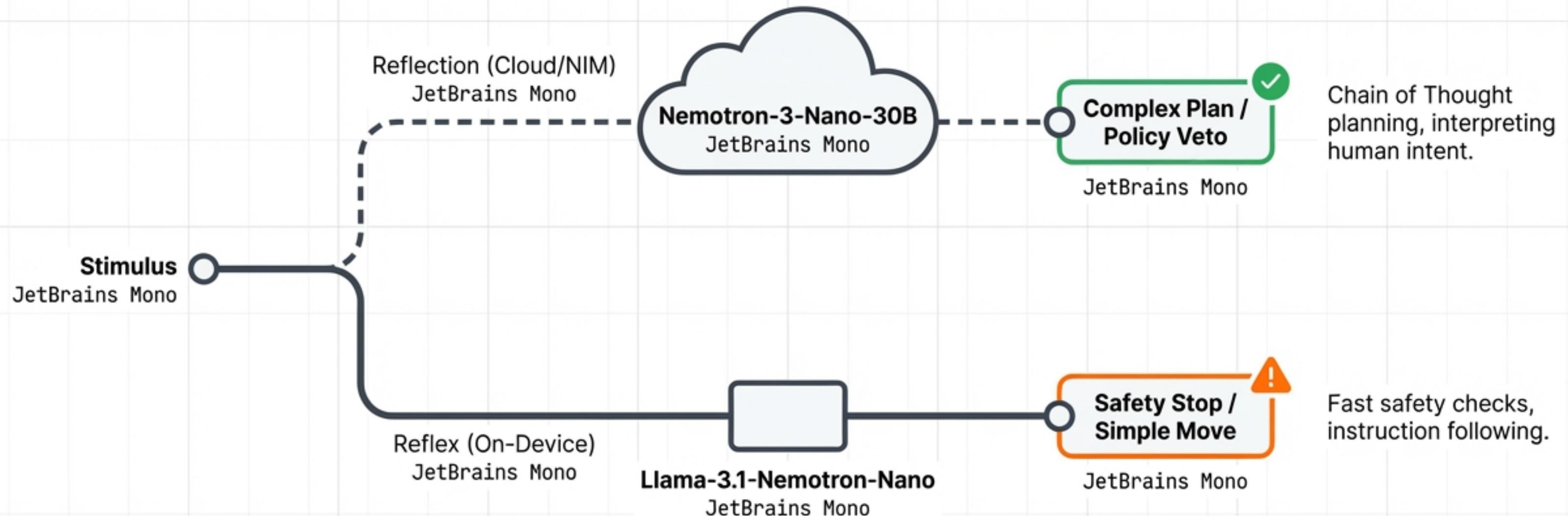
## TRAJECTORY FORECASTING

Model: cosmos-predict1-5b.

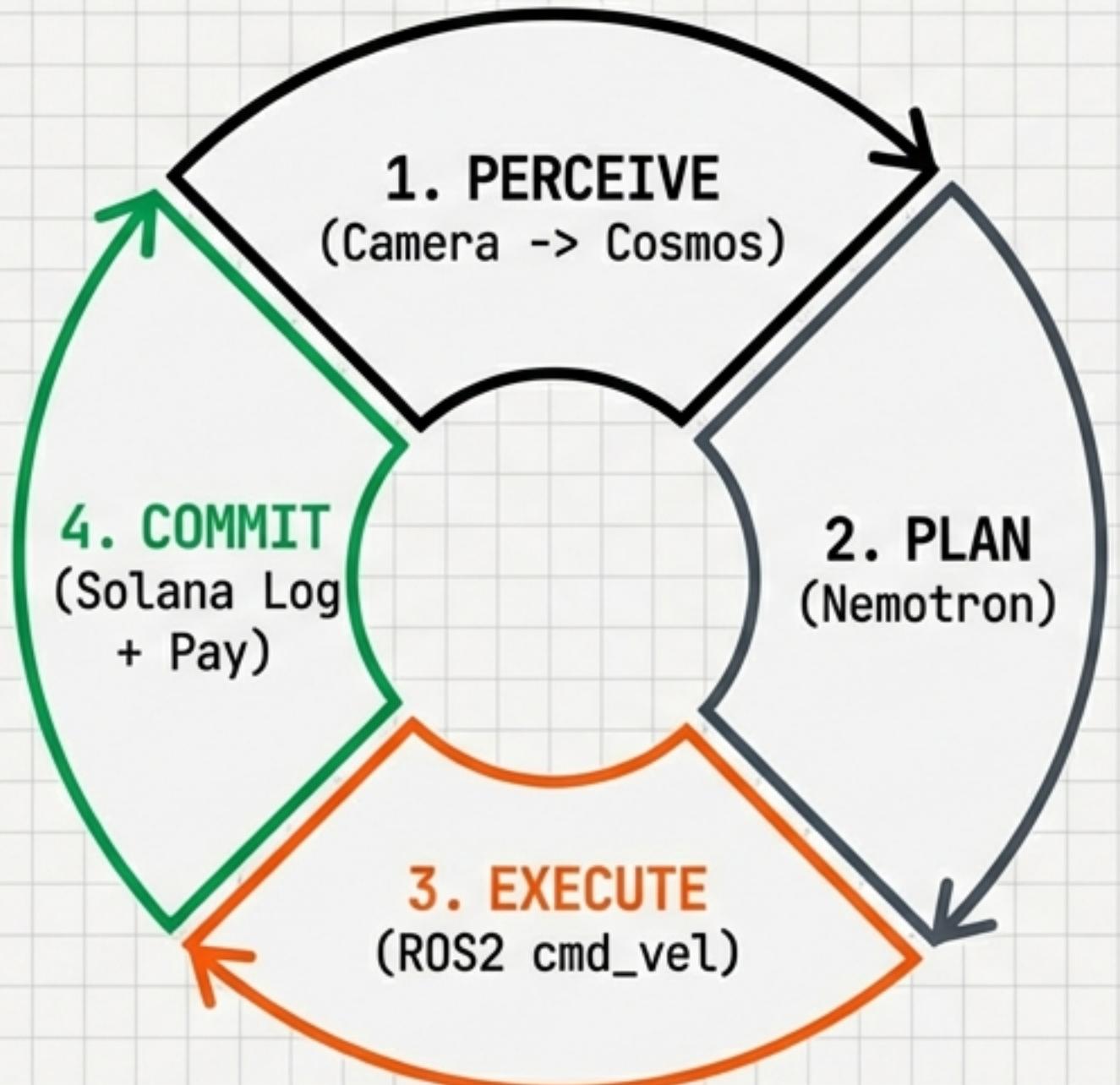
Function: Predicts future frames and human movement. (e.g., 'Where will this person be in 2 seconds?')

Integration via NVIDIA Integrate Endpoint.

# Reason: The Hybrid Decision Engine



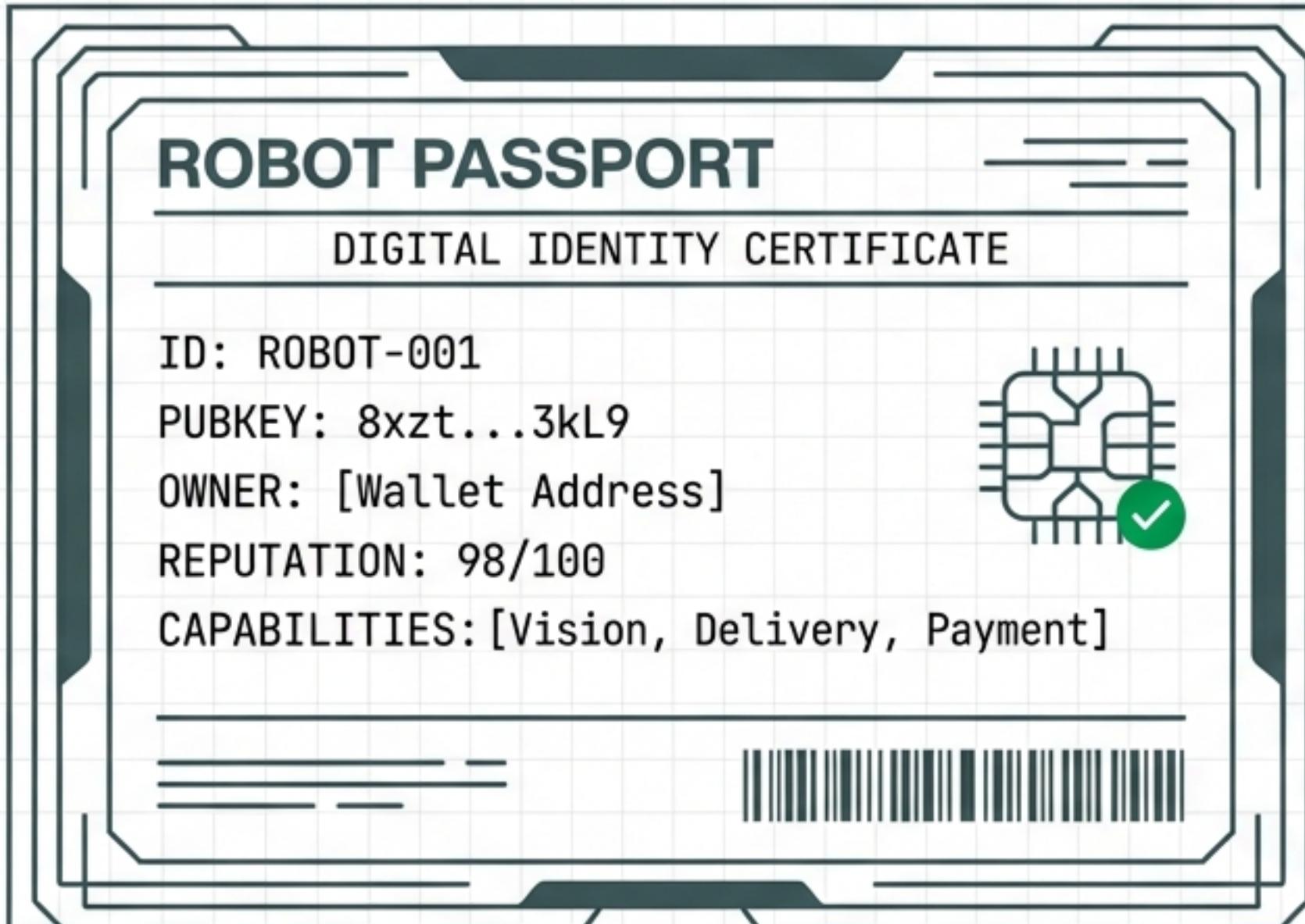
# The Core Runtime Loop



## PYTHON RUNTIME SNIPPET

```
while self.state.task_status == "running":  
    # The Infinite Loop of Autonomy  
    perception = await self.perceive(image_data)  
    decision = await self.reason(perception, task)  
    success = await self.execute(decision)  
  
    # The Economic Bridge  
    await self.log_action_onchain(decision)
```

# The Economic Layer: Identity & Registry



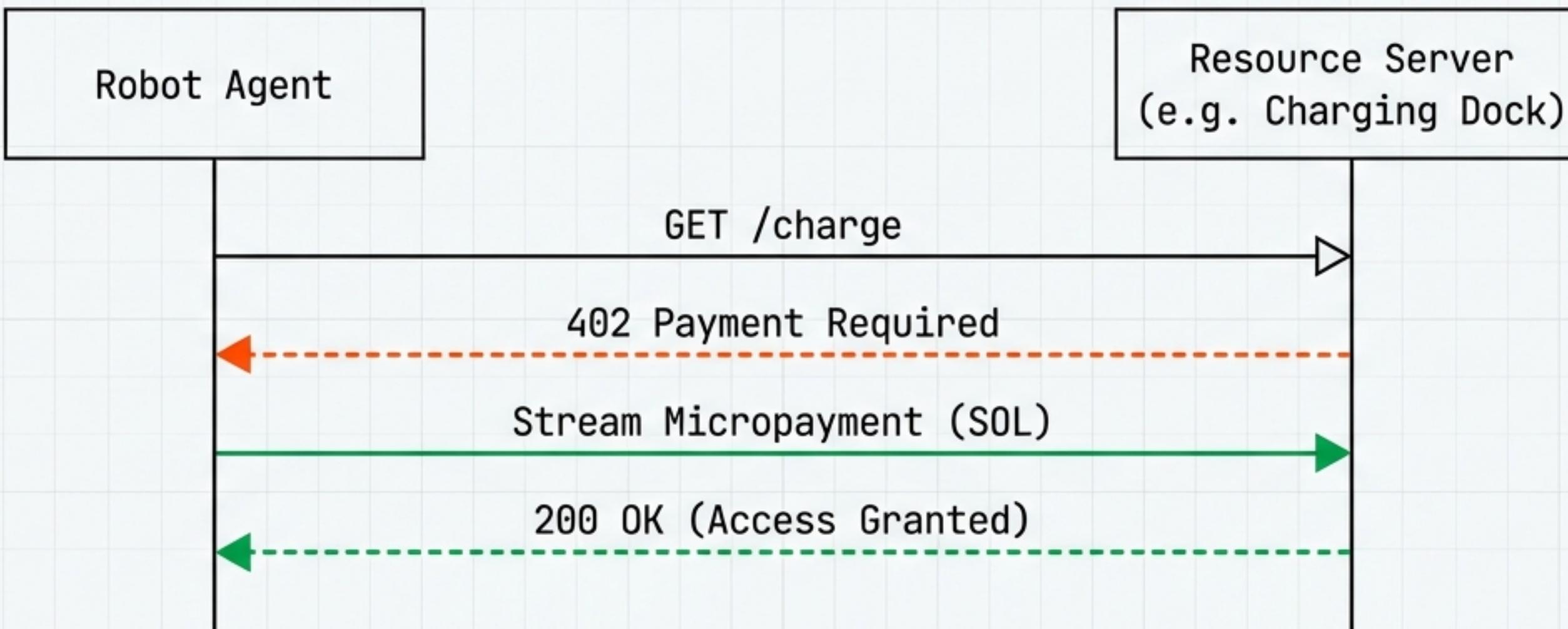
## ON-CHAIN PROGRAMS

- ⌚ **Registry:** Stores metadata and ownership.
- 🔗 **Action Log:** Append-only event log for sensor proofs (Immutable).
- 🤝 **Marketplace:** Task bidding and escrow.

## WHY SOLANA?

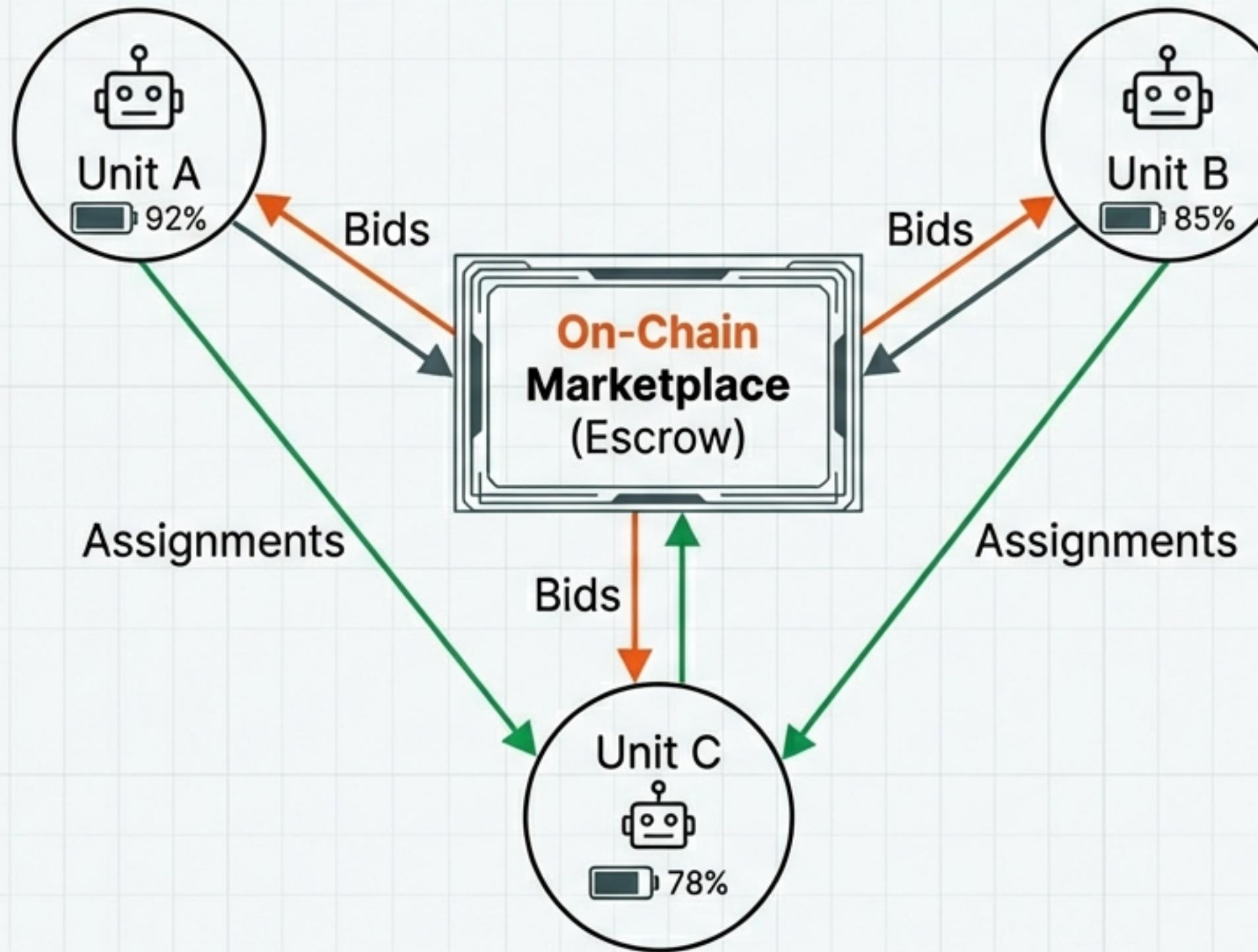
High throughput and low fees are essential for micro-transactions between machines.

# The x402 Protocol: HTTP-Native Payments



Reviving the HTTP 402 status code. Robots handle payment challenges autonomously, enabling friction-free interaction with paid APIs and physical infrastructure.

# Swarm Coordination & Task Allocation



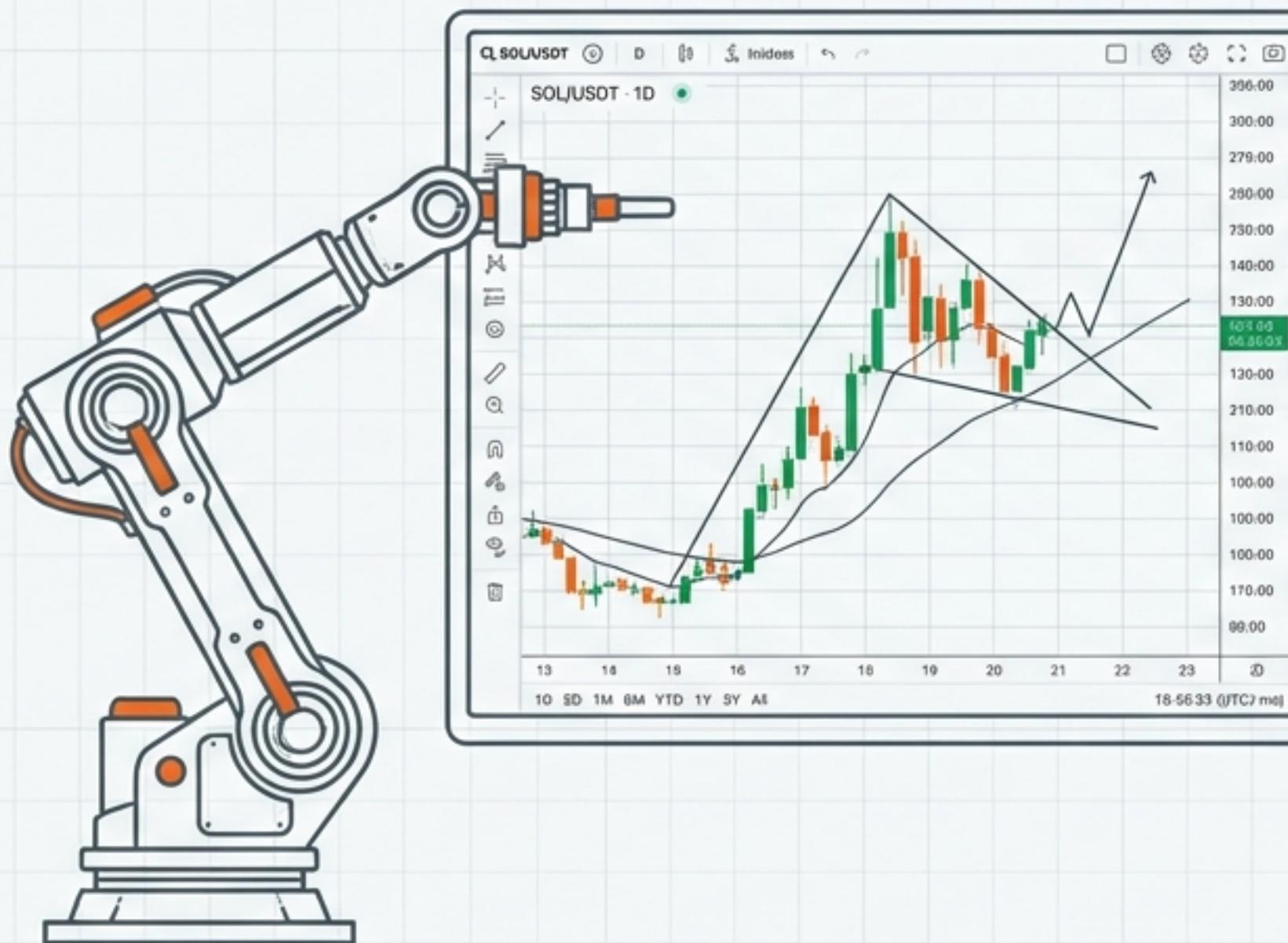
- 1. Task Creation:** Coordinator posts task to Marketplace.
- 2. Bidding:** Robots bid based on battery/proximity. Funds escrowed.
- 3. Verification:** Sensor proofs logged upon completion.
- 4. Settlement:** Payment distributed based on contribution.

## Note:

**Future State:** Fully decentralized on-chain bidding logic.

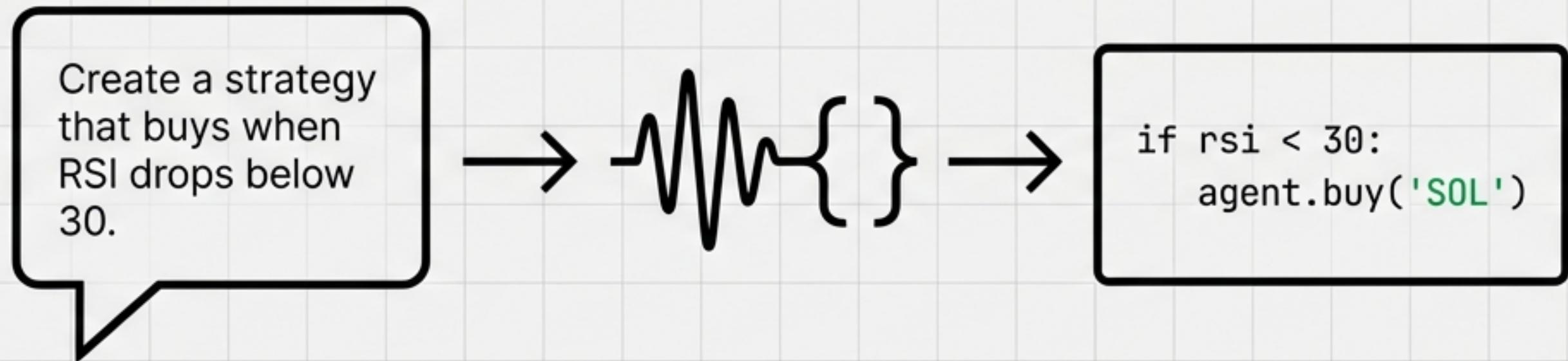
# Flagship Application: Solana GROOT

An embodied AI trading robot. It points, explains rationale via voice, and physically/digitally executes the trade.



Vision	Voice	Action
<ul style="list-style-type: none"><li>✓ Cosmos Model reads chart patterns (Head &amp; Shoulders, Wedges).</li></ul>	<ul style="list-style-type: none"><li>✓ Bi-directional comms via Parakeet/ LiveKit. "Buy 10 SOL".</li></ul>	<ul style="list-style-type: none"><li>✓ Executes trades on Jupiter/ Raydium DEX.</li></ul>

# Interaction: Voice Control & Vibe Coding

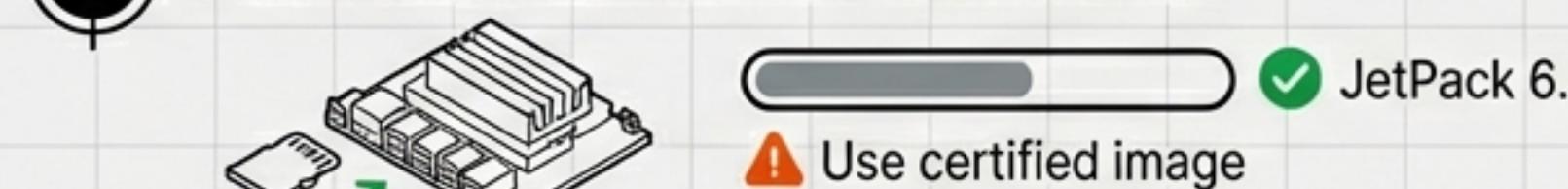


- **Realtime Vibe Coding:** Natural language to executable Python.
- **Voice Integration:** Powered by LiveKit & Parakeet.
- **Safety:** Voice confirmation intercepts for high-value transactions.

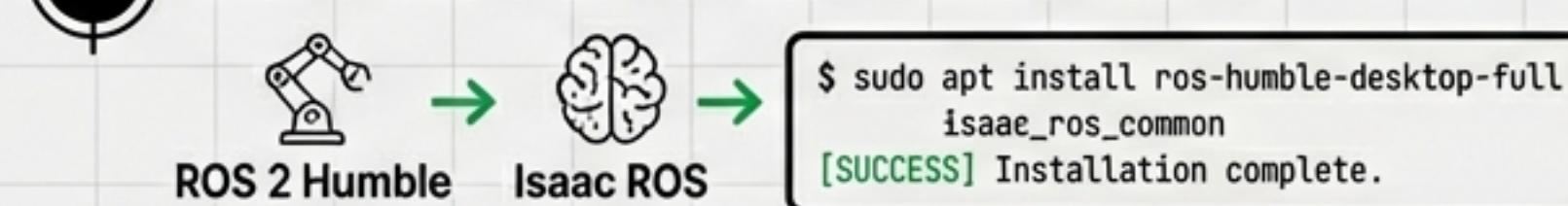
# Developer Quickstart: Zero to Autonomy

## The Happy Path

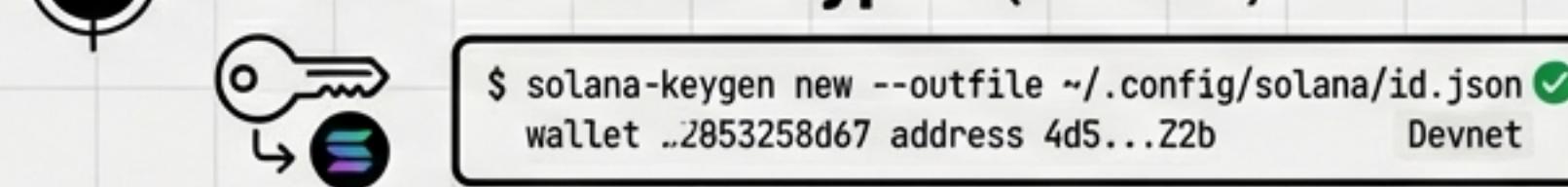
- 1 Flash **JetPack 6.1** on Orin Nano.



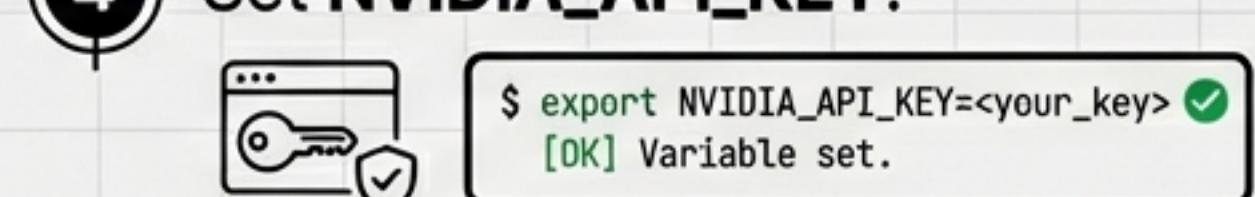
- 2 Install **ROS 2 Humble** & **Isaac ROS**.



- 3 Generate **Solana Keypair** (Devnet).



- 4 Set **NVIDIA\_API\_KEY**.



## Repo Structure

```
solana-robotics-kit/  
  ├── apps/  
  |   └── robot-daemon/  # ROS2 + Wallet  
  |   └── packages/  
  |       └── perception/  
  |           └── solana-client/  # SPL payments  
  |               └── programs/  
  |                   └── marketplace/  # Anchor contracts
```

# Roadmap: The Path to 2027

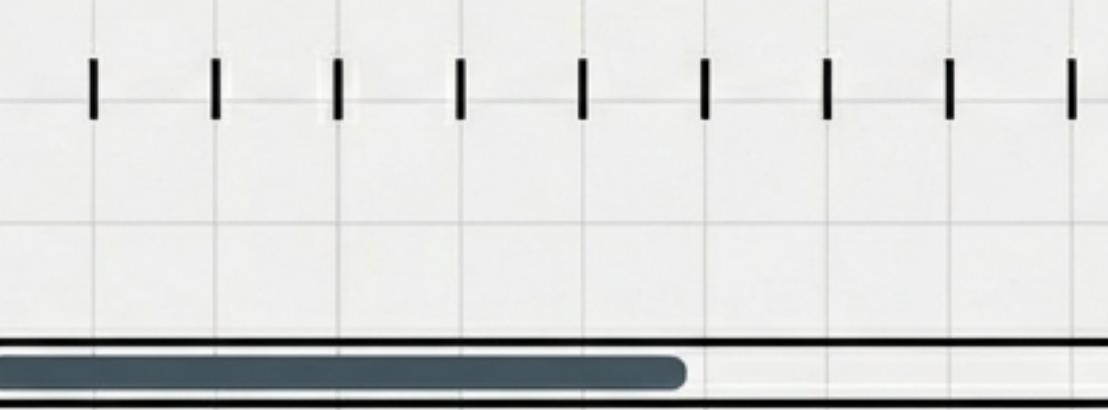
## Q2 2026 (Alpha)



### Current Status ✓

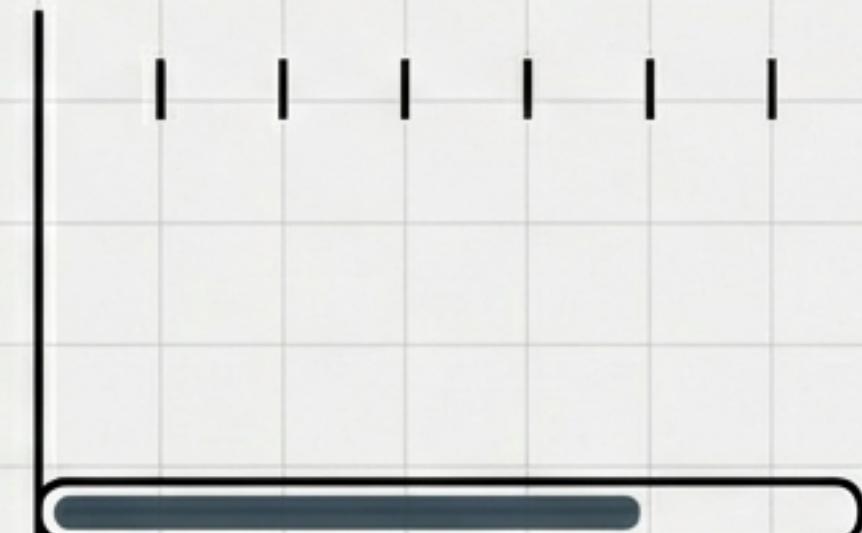
Basic navigation, ROS2 + Solana runtime, Cosmos vision.

## Q3 2026 (Swarm)



Warehouse automation demos, multi-robot coordination, on-chain marketplace.

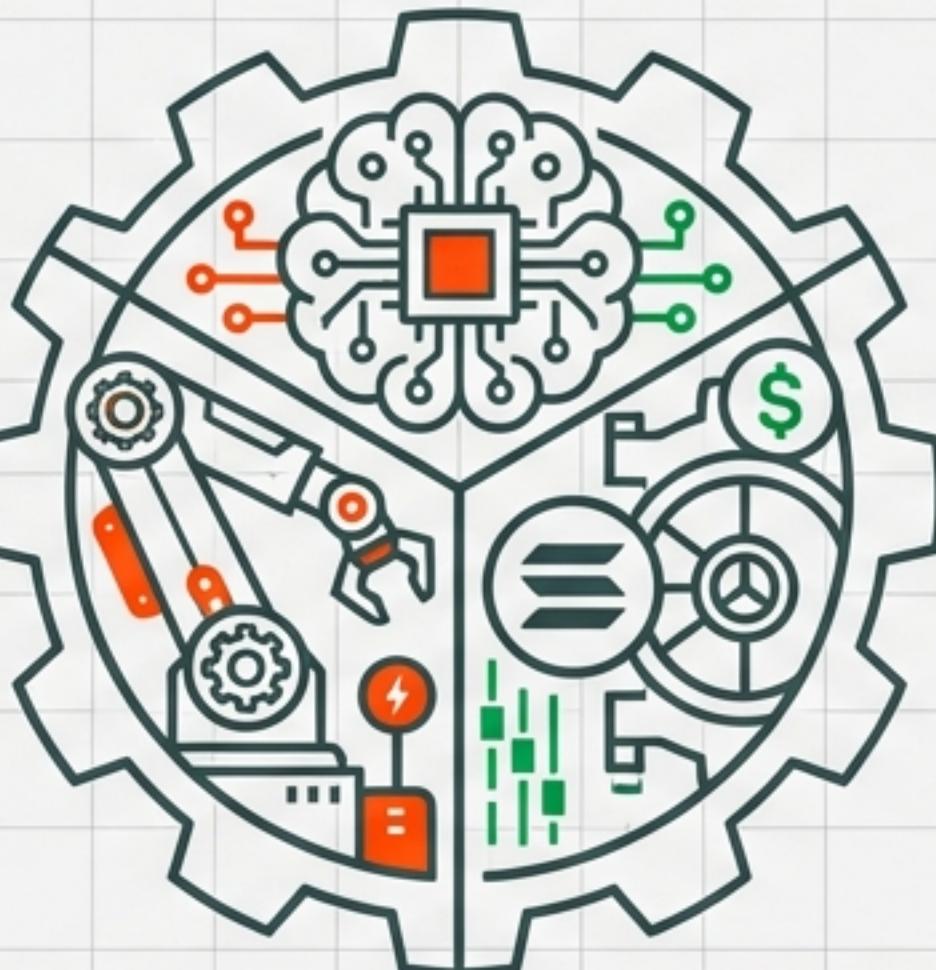
## 2027 (Ecosystem)



Cross-chain robot networks, AI-driven manufacturing.



# The Convergence is Here



Build the kit. Contribute to the repo.  
Deploy the first generation of economic robots.

**GitHub:** [8bitsats/SolanaAutomation](https://github.com/8bitsats/SolanaAutomation)  
**Docs:** [NVIDIA Developer](https://developer.nvidia.com/) / [Solana Docs](https://docs.solana.com/)  
**Community:** [Discord #solana-robotics](https://discord.com/invite/solana-robotics)