



# Agentic AI Architecture Principles for Autonomous Computer Networks

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# The Interoperability Gap: Proprietary Multi-Agent Silos

Traditional Approach	Proprietary Multi-Agent AI	Proposed Augmentation
Statically configured and isolated loops	Goal-driven reasoning and tool invocation	Distributed goal-driven closed-loops
Hardcoded and centralized	Vendor-locked silos across layers No standard way to name, discover and coordinate agents	Standardized inter-agent networking

We have closed-loops but they cannot talk to each other. We need is vendor-independent mechanisms for agent discovery and coordination



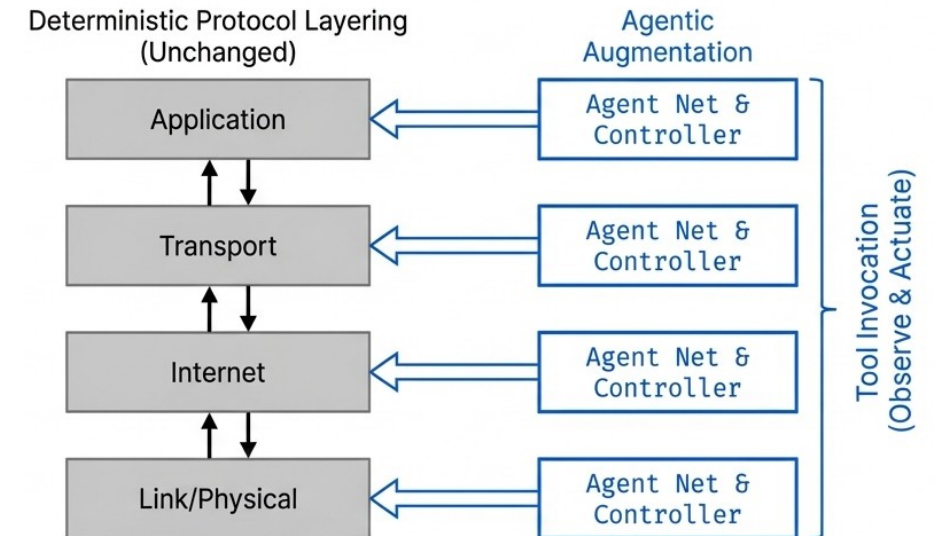
# Agentic Augmentation for the IP Suite

**Principle 1:** Deterministic interlayer service interfaces remain untouched

**Principle 2:** AI agents act as first-class entities alongside each layer

**Principle 3:** Explicit separation of packet transport from goal-driven automation logic

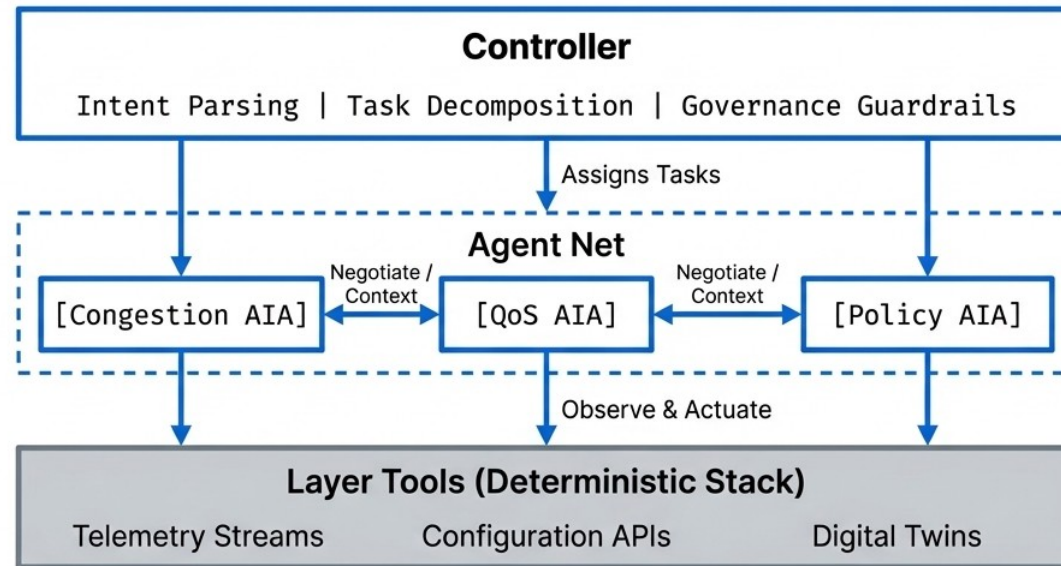
The Hybrid Stack Concept



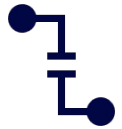
# Proposed Architecture

- Controller govern, handle intents, created and assign tasks
- Agents reason and act

## Architecture: Per-Layer Agent Nets



# Interoperability Challenges



## Reachability

Challenge: no common naming/addressing schema for agents across layers and vendors

Risk: fragile interoperability and limited scaling



## Discovery

Challenge: limited service discoverability and failure signals for agents

Risk: silent failures, unbounded retries, incorrect decisions on incomplete context



## Data Provisioning

Challenge: inconsistent approaches for exchanging telemetry and operational data

Risk: model drift and limited adaptability



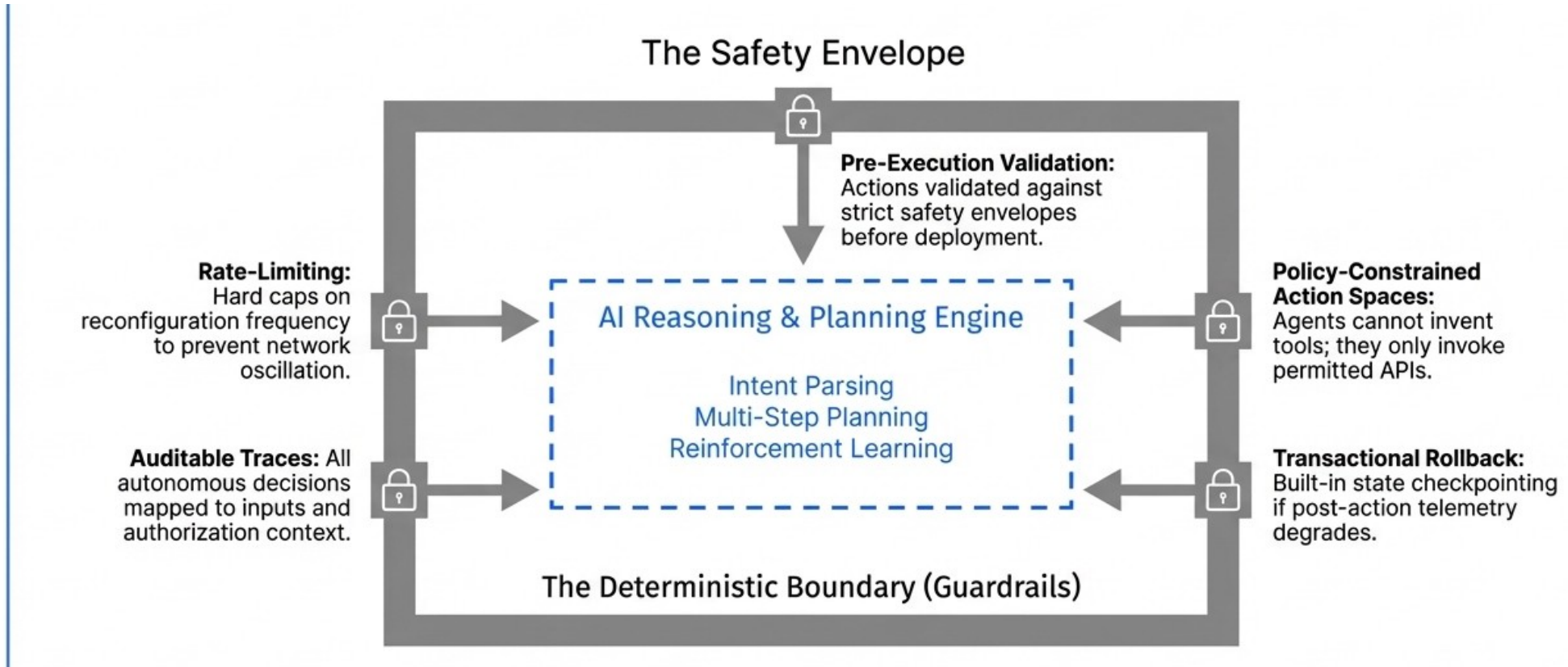
## Access Control

Challenge: distributed security token management

Risks: unable to renew, revoke credentials across heterogeneous agents



# How to achieve Determinism



# Recommendations to NMRG

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Study and agree on agentic AI and related terminology

Study and refine the proposed architecture and relevant reference points and interfaces

Study and define agent lifecycle management

Study agentic AI security including how do we achieve determinism, human-in-the-loop





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