



Agentic Orchestration System

for AI Compute and Energy Co-optimization



Intelligent co-optimization of AI workloads and energy resources in Distributed Energy
Generation environments

📅 2025-11-25

Ξ Beckn Protocol

🏢 SARTE-AI

The AI Energy Challenge

Growing AI compute demands present a critical challenge to our energy infrastructure, threatening both grid stability and environmental sustainability.



Grid Stability

Escalating AI workloads strain existing energy infrastructures, risking power outages and grid collapse.



Carbon Footprint

Increasing energy consumption leads to higher carbon emissions, counteracting sustainability goals.

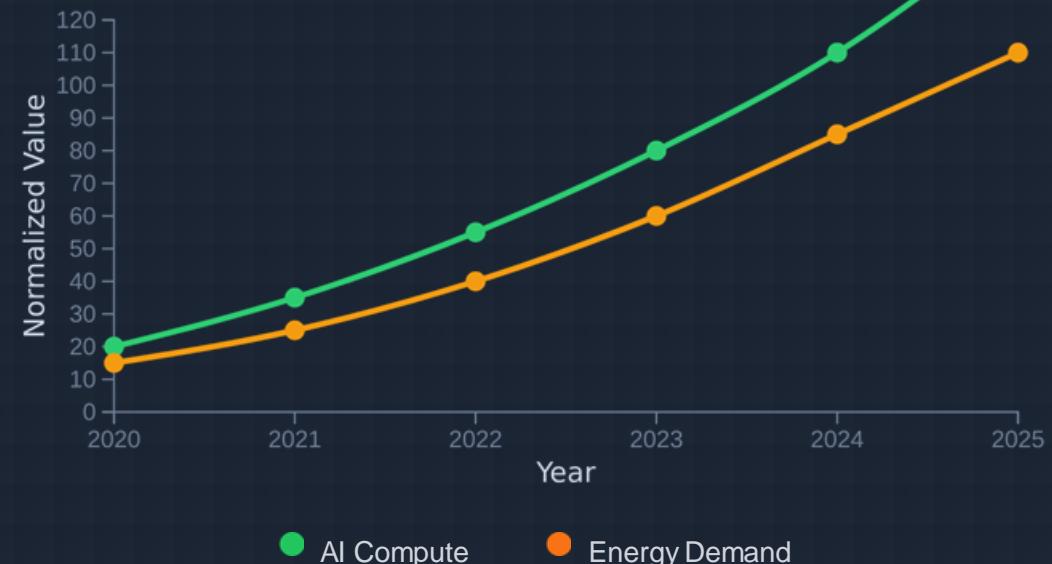


Resource Management

AI workloads grow in complexity and scale, making intelligent energy management essential.



AI Compute vs. Energy Demand



Critical Need: Intelligent solutions that co-optimize AI workloads with energy resources while maintaining operational efficiency and environmental responsibility.

Solution Overview

An Agentic Orchestration System that co-optimizes AI workloads and energy resources in Distributed Energy Generation environments.



Autonomous AI Agents

Intelligent agents make real-time decisions about workload execution



Energy Awareness

System manages computational demands with available energy



Primary Goals

Minimizes cost while maintaining compliance with emissions caps



Grid Co-optimization Agent

ML-driven decision engine that predicts optimal actions:



Run



Defer



Use Storage



Compute Agent

Manages AI workload scheduling



Grid Agent

Monitors energy prices & carbon



Storage Agent

Manages local energy storage



Communication Protocol

Transactions secured through Beckn Protocol for interoperable & traceable interactions

Technical Architecture



Decentralized System

Autonomous agents operate independently through Beckn Protocol



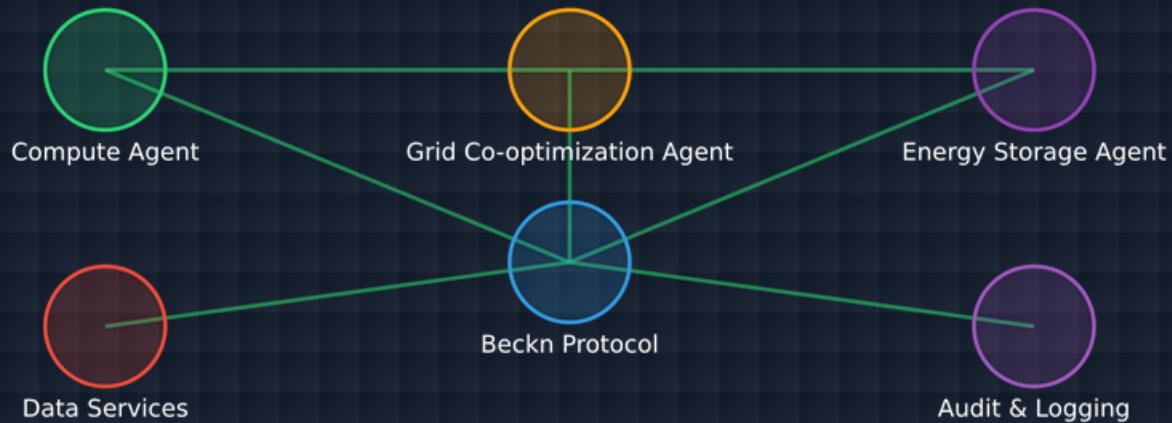
Microservices Design

Promotes modularity, scalability, and resilience



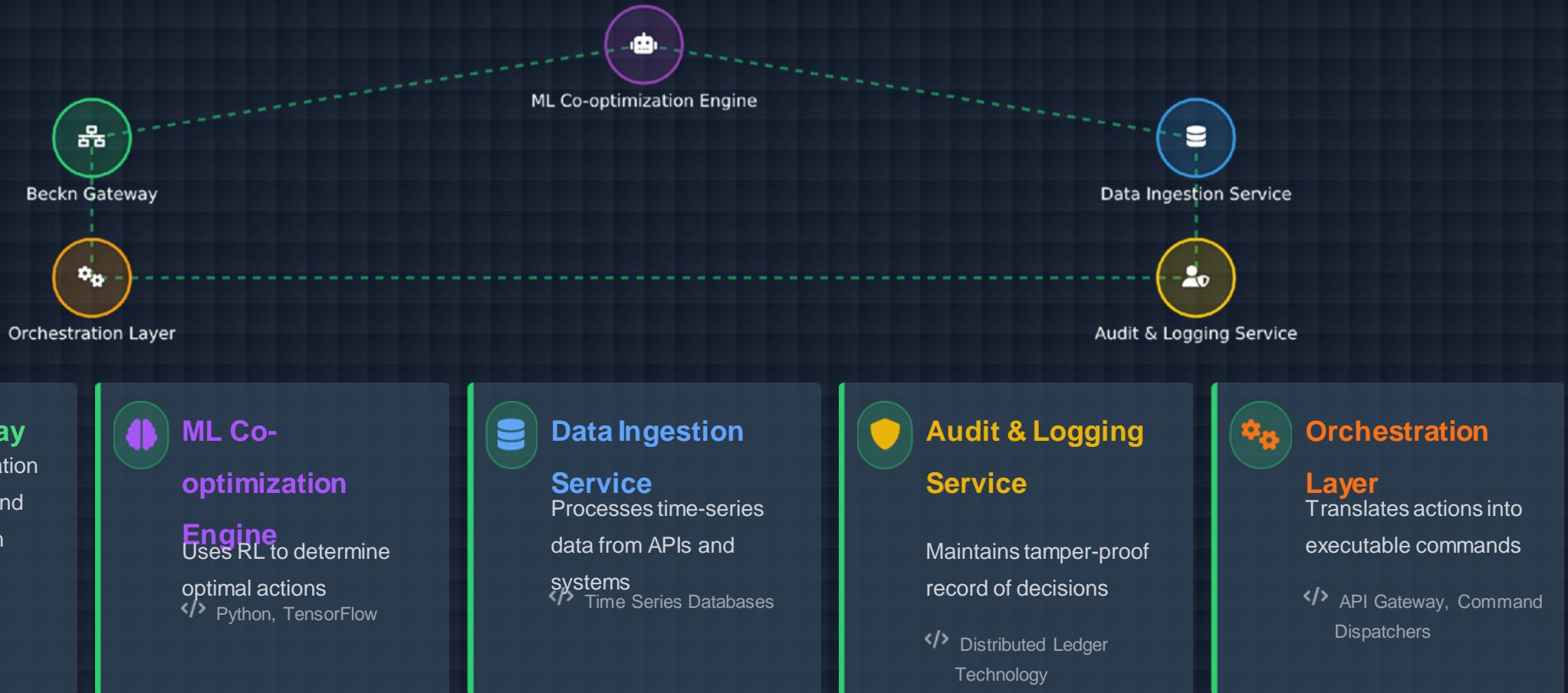
Beckn Protocol

Enables secure, interoperable transactions



System Components

The Agentic Orchestration System comprises five core components for co-optimizing AI compute workloads and energy resources.



Key Agents and Roles

Three primary agents fulfill distinct roles in the Beckn transaction lifecycle



Compute Agent

Provider Catalog Publisher

Primary Role:

- Manages AI workload scheduling
- ✓ Publish available compute job slots
- ✓ Receive and process deferral commands
- ✓ Report job completion



Grid Co-optimization Agent

Buyer Order Initiator

Primary Role:

- Central decision-maker for energy-aware scheduling
- ✓ Ingest real-time grid data
- ✓ Run ML Co-optimization Model
- ✓ Initiate transactions to other agents



Energy Storage Agent

Provider Fulfillment Executor

Primary Role:

- Manages local energy storage
- ✓ Publish State of Charge and capacity
- ✓ Receive and execute discharge commands
- ✓ Report energy flow

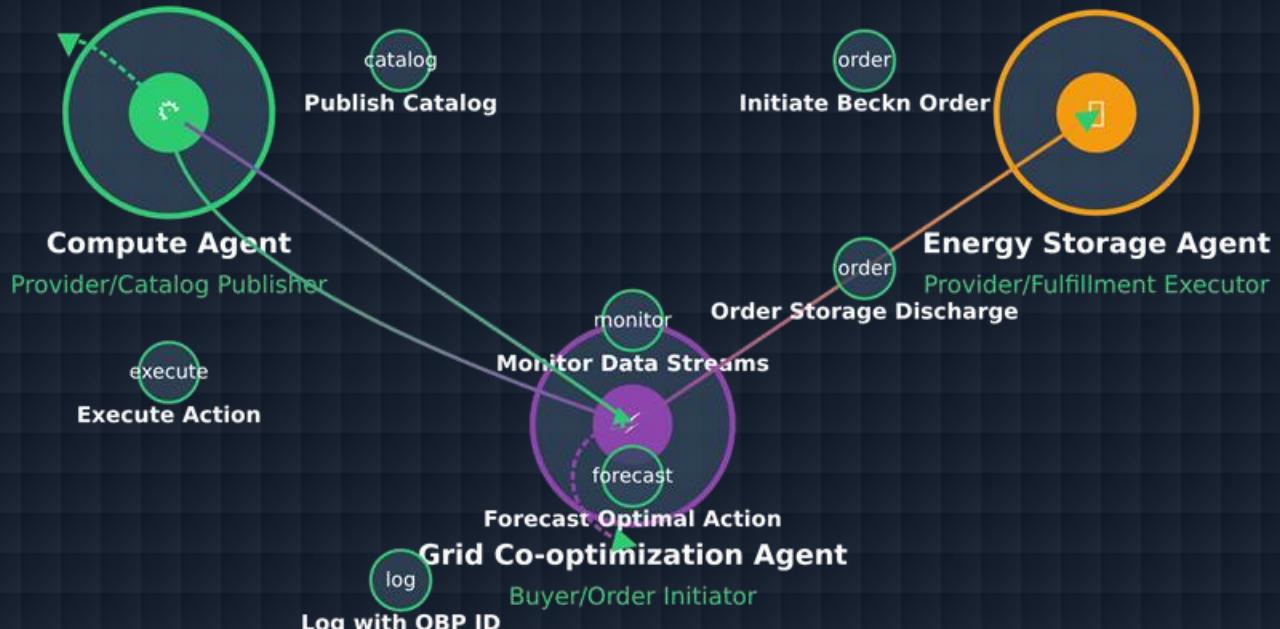
Agent Workflow and Integration

The system operates through a continuous agentic loop, enabling coordination between AI workloads and energy resources.

Continuous Agentic Loop
Autonomous cycle of monitoring, decision-making, and execution

ML-Driven Decisions
GCA's ML model forecasts grid conditions for cost-minimizing actions

Beckn Protocol Integration
Standardized communication between agents with OBP IDs for auditability

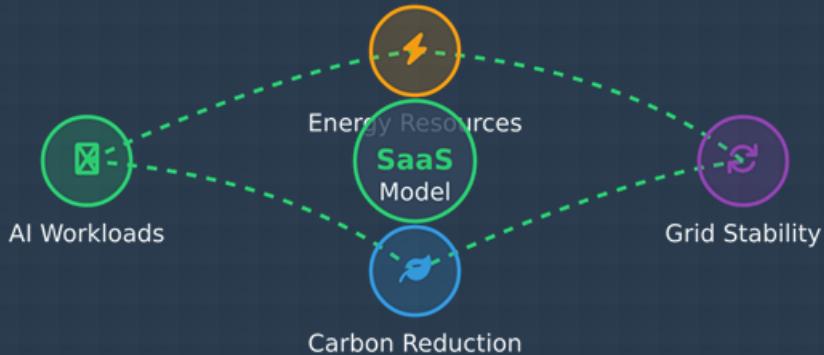


Business Model and Impact

SaaS Revenue Model

- ✓ Energy cost savings (\$) from optimized scheduling
- ✓ Flexibility market revenue (e.g., P415)
- ✓ Premium tier with advanced carbon-aware scheduling
- ✓ Validation via verifiable, auditable transaction logs

Value Delivery Mechanism



Strategic Impact



Prevents Grid Destabilization (\$)

Autonomous prevention of grid issues from AI compute demand



Reduces Carbon Footprint

Prioritization of low-carbon energy for AI workloads



Lowers Operational Costs (\$)

Energy optimization for data center resource allocation



Transforms Compute Capacity (\$)

Converts flexible compute into grid asset for decentralization

POTENTIAL CLIENTS



TESLA

BYD



RIVIAN



MEET THE TEAM



Hariswar Baburaj

Swapnil Kumar

Ayanfeoluwa
Oluwasuan

Imran Matin

Mohammad Umer
Farooq

Thank You

