NO BULLS#@T AGENT AI PATTERNS

Augmented LLM Pattern

What is it?

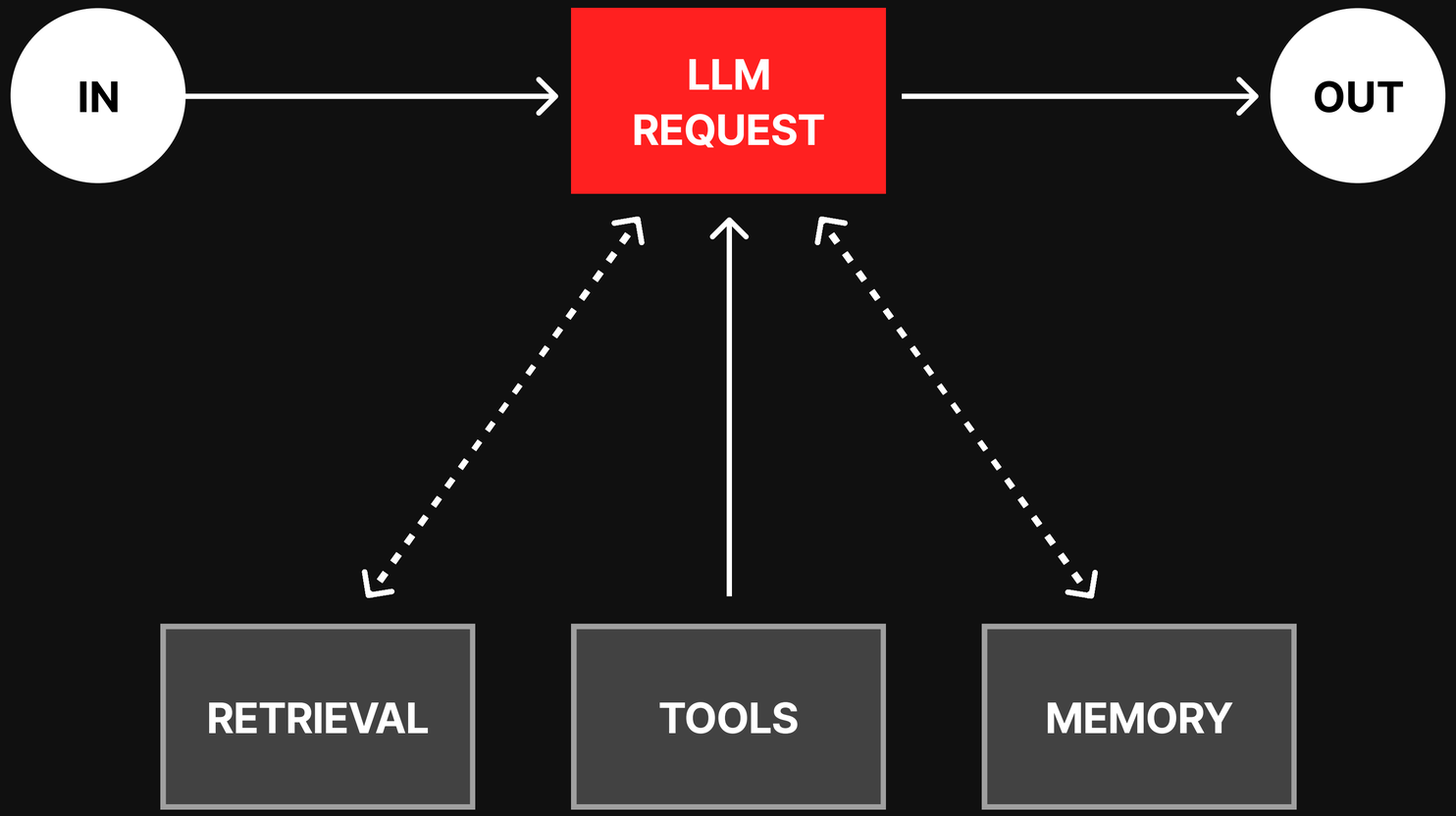
Enhance the context of LLM calls.

Components

- **Retrieval:** Using databases (e.g., vector databases for RAG).
- **Tools:** APIs for accessing external data (e.g., weather, shipping).
- **Memory:** Maintaining conversation history for continuity.

Goal

Improve the quality of LLM responses by augmenting context.


IN
LLM
REQUEST
OUT
RETRIEVAL
TOOLS
MEMORY

Prompt Chaining Pattern

What is it?

Sequentially chaining LLM calls to break down complex problems.

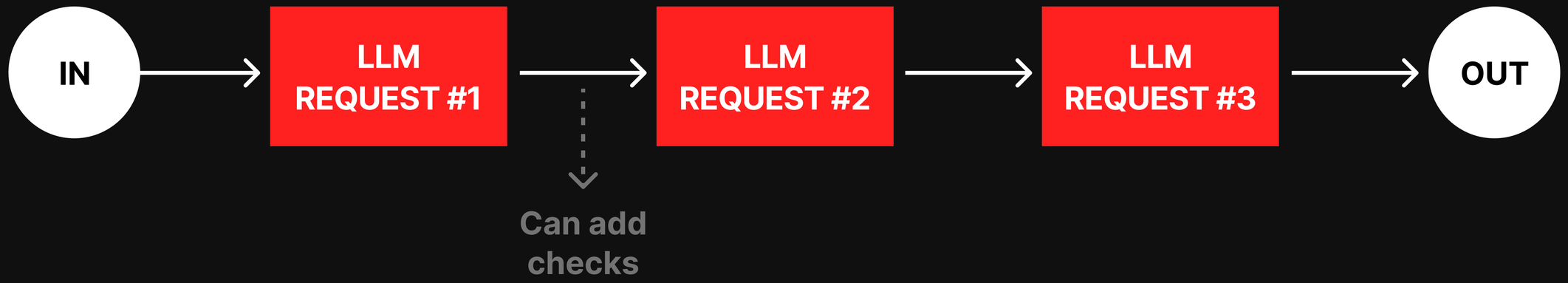
Example

Writing a Blog Post

- **Step 1:** Research ideas
- **Step 2:** Create an outline
- **Step 3:** Write each section sequentially

Goal

- Greater control over intermediate steps.
- Improved accuracy and predictability.


IN
LLM REQUEST #1
LLM REQUEST #2
LLM REQUEST #3
OUT
Can add checks

Routing Pattern

What is it?

Use LLMs to categorize inputs and route tasks.

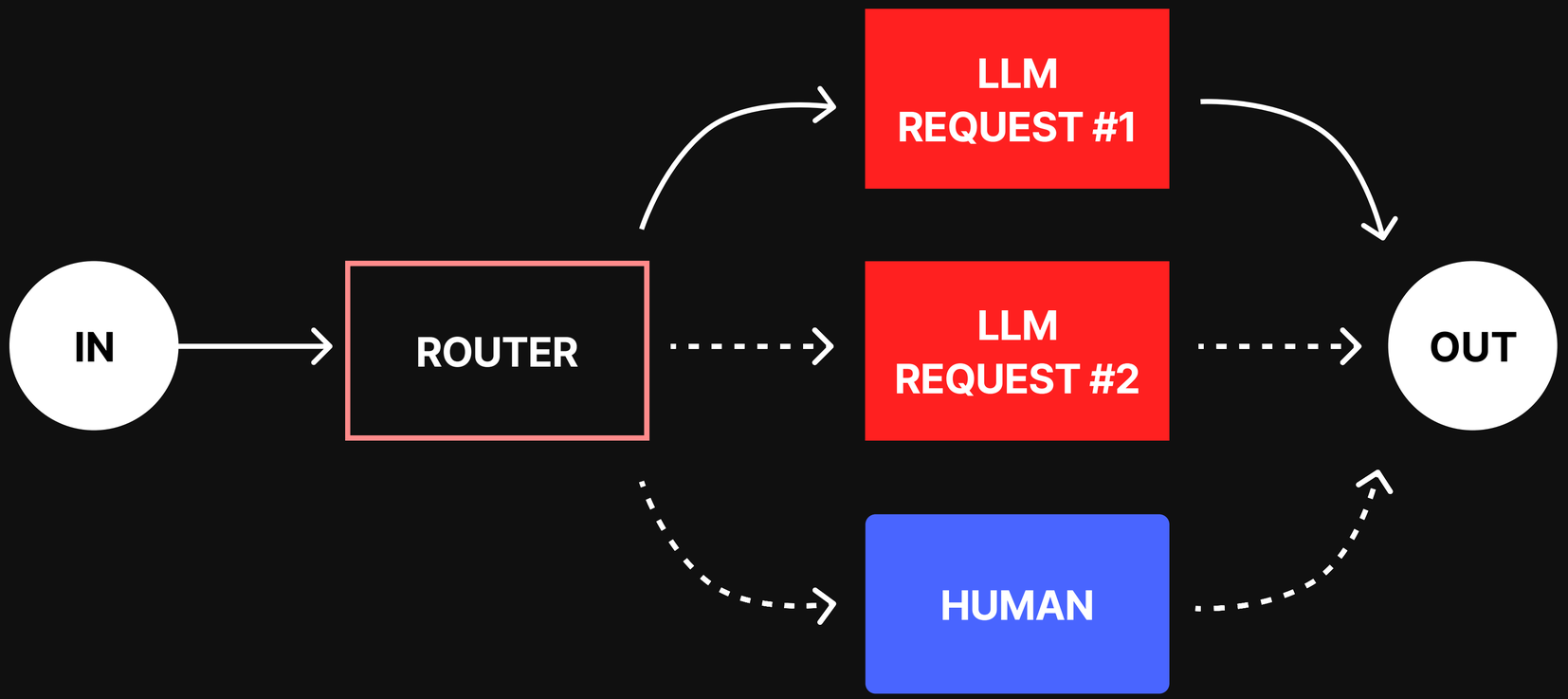
Example

Customer Support

- Categorize incoming queries (e.g., “Where is my order?”).
- Route specific types of queries to specialized workflows.

Goal

- Simplifies complex applications by isolating tasks.
- Enables modular development.


IN
ROUTER
LLM
REQUEST #1
LLM
REQUEST #2
HUMAN
OUT

Parallelization Pattern

What is it?

Perform independent LLM calls simultaneously

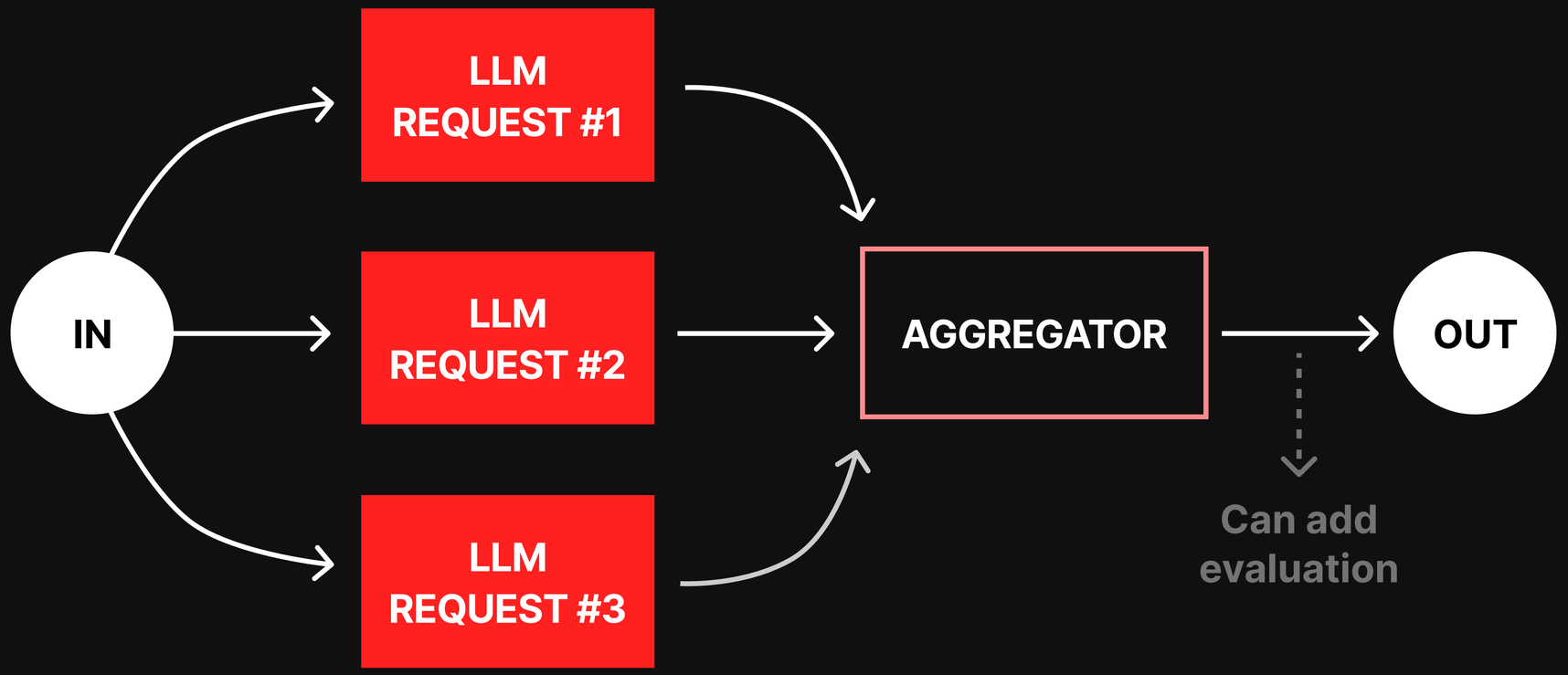
Example

Content moderation

- Evaluate accuracy, harmfulness, and prompt injection risks in parallel.

Goal

- Faster processing times.
- Efficient use of resources.


LLM
REQUEST #1
IN
LLM
REQUEST #2
AGGREGATOR
OUT
LLM
REQUEST #3
Can add
evaluation

Orchestrator-Worker Pattern

What is it?

A central orchestrator directs specialized workers

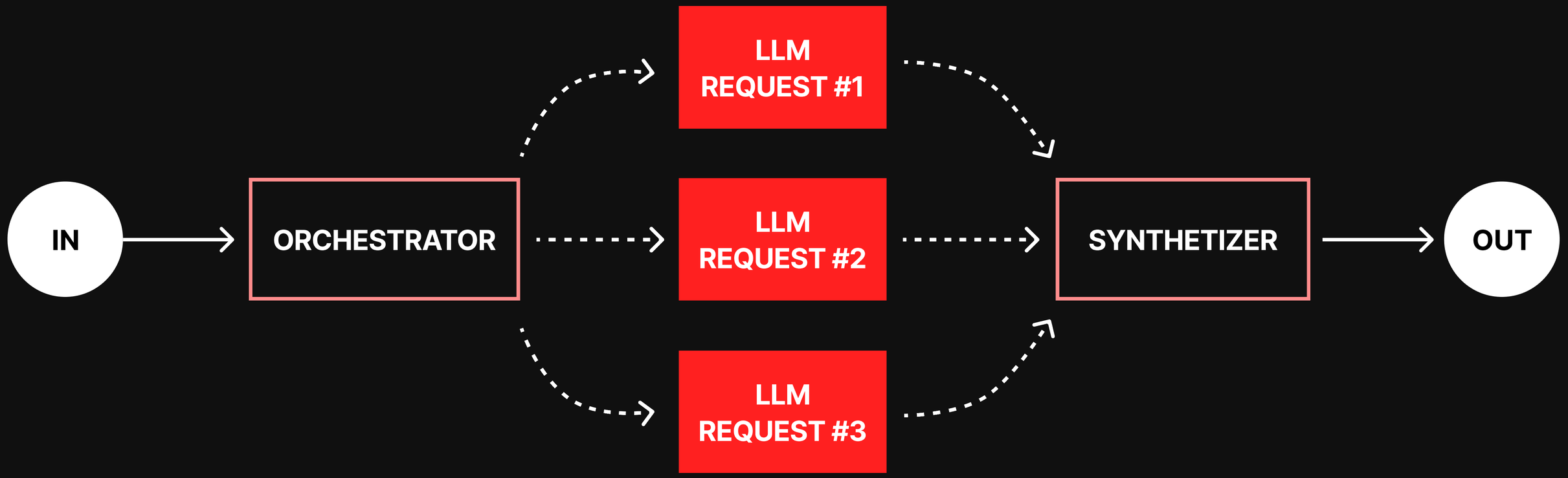
Example

Customer Care

- The orchestrator evaluates an email and delegates tasks like retrieving order status, checking shipping details, etc

Goal

- Combines linear workflows with dynamic adaptability


IN
ORCHESTRATOR
LLM
REQUEST #1
LLM
REQUEST #2
LLM
REQUEST #3
SYNTHETIZER
OUT

Evaluator-Optimizer Pattern

What is it?

Use LLMs to create, evaluate, and refine outputs

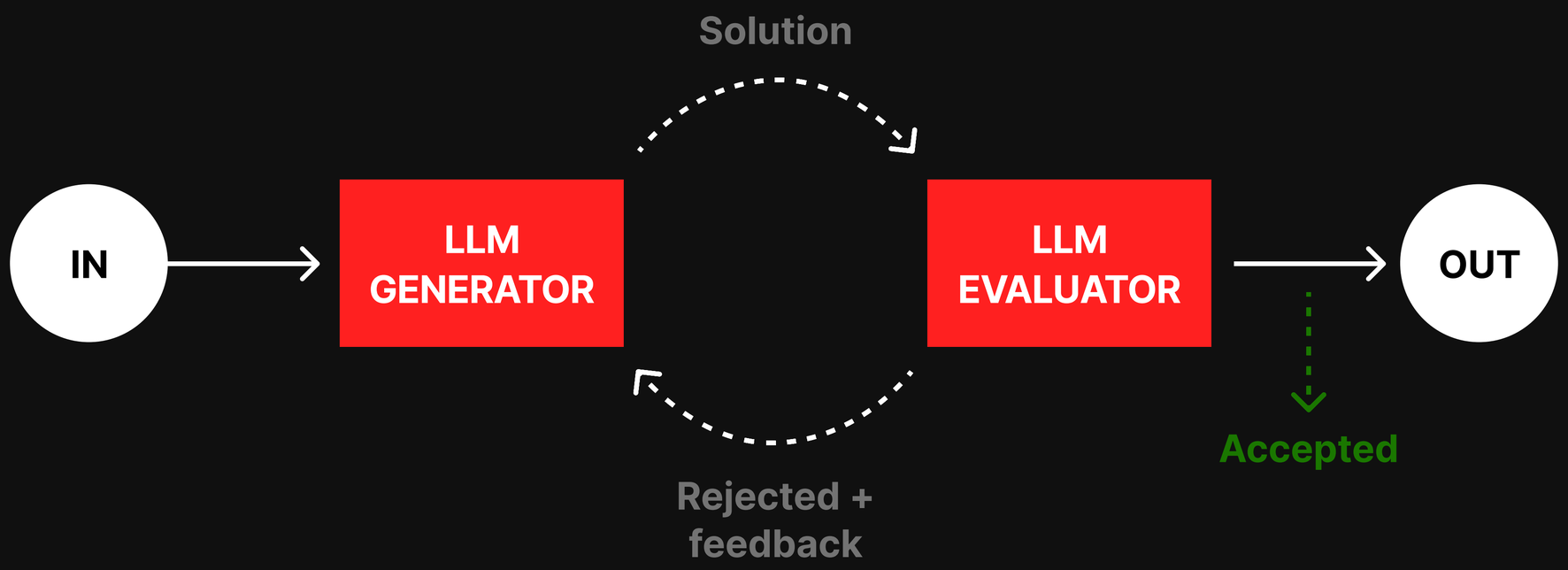
Example

Blog Post Creation

- **Step 1:** Write a draft
- **Step 2:** Critically evaluate and list improvements
- **Step 3:** Refine the draft using feedback

Goal

- Iterative improvement
- Ensures high-quality results


Solution
IN
LLM GENERATOR
LLM EVALUATOR
OUT
Accepted
Rejected + feedback

Autonomous AI Agent

What is it?

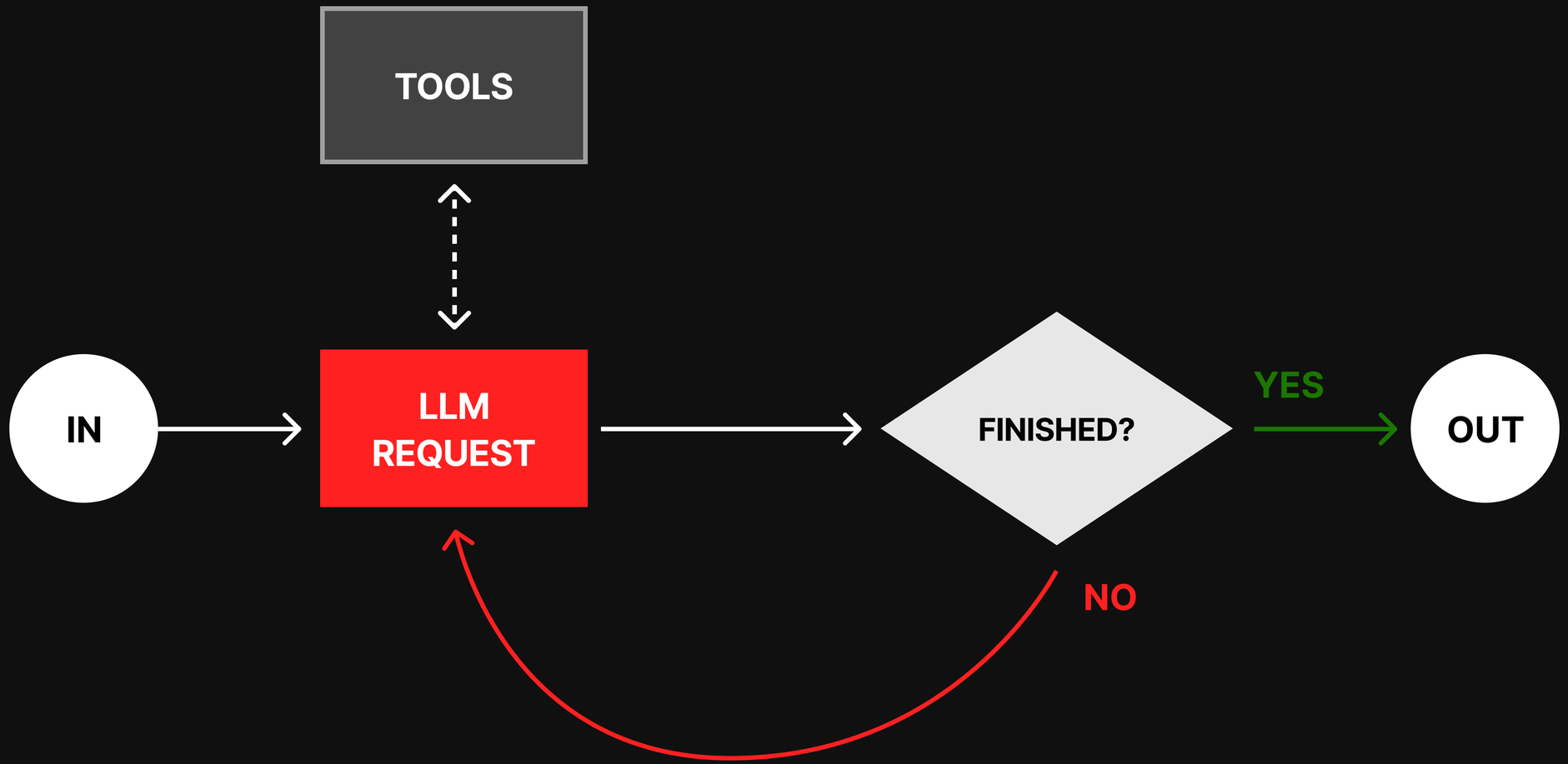
An agent iteratively interacts with its environment to achieve a goal

How it works

- The LLM makes decisions.
- Takes actions and evaluates results.
- Iterates based on feedback until a stopping criterion is met.

Notes

- Can solve complex and unknown tasks
- Unpredictable behavior
- Hard to ensure reliability at scale


TOOLS
IN
LLM
REQUEST
FINISHED?
YES
OUT
NO