



THE RISE OF AI AGENTS AS THE NEW ARCHITECTS OF THE WEB

HOW AI AGENTS ARE REPLACING TRADITIONAL BACKEND SYSTEMS



WHAT IS BACKEND?

BACKEND HISTORY

The background features a smooth gradient from deep red at the top to a dark blue at the bottom. It is populated with numerous small, white, star-like particles of varying sizes. Faint, white, circular patterns are scattered across the image, some with arrows indicating a clockwise direction. These patterns resemble technical or scientific diagrams, such as circular scales or orbital paths.

WHY TRADITIONAL BACKEND IS BECOMING REDUNDANT



WHY TRADITIONAL BACKEND IS BECOMING REDUNDANT ?

- Manual Development vs AI-Driven Automation
- Static APIs vs Adaptive AI APIs
- Rule-Based Processing vs Machine Learning-Based Decision Making

FOUR AI BACKEND ARCHITECTURES EXPLORED

Semantic
Kernel -
Plugins

Query LLM

Crew AI

AUTO – RAG !

WHY SEMANTIC KERNEL ?

- Orchestrating AI Agents
- Context-Aware AI Workflows
- Plugin-Based Architecture
- Advanced Planning & Reasoning

WHAT IS SEMANTIC KERNEL ?

- Lightweight, open-source AI SDK by MSFT

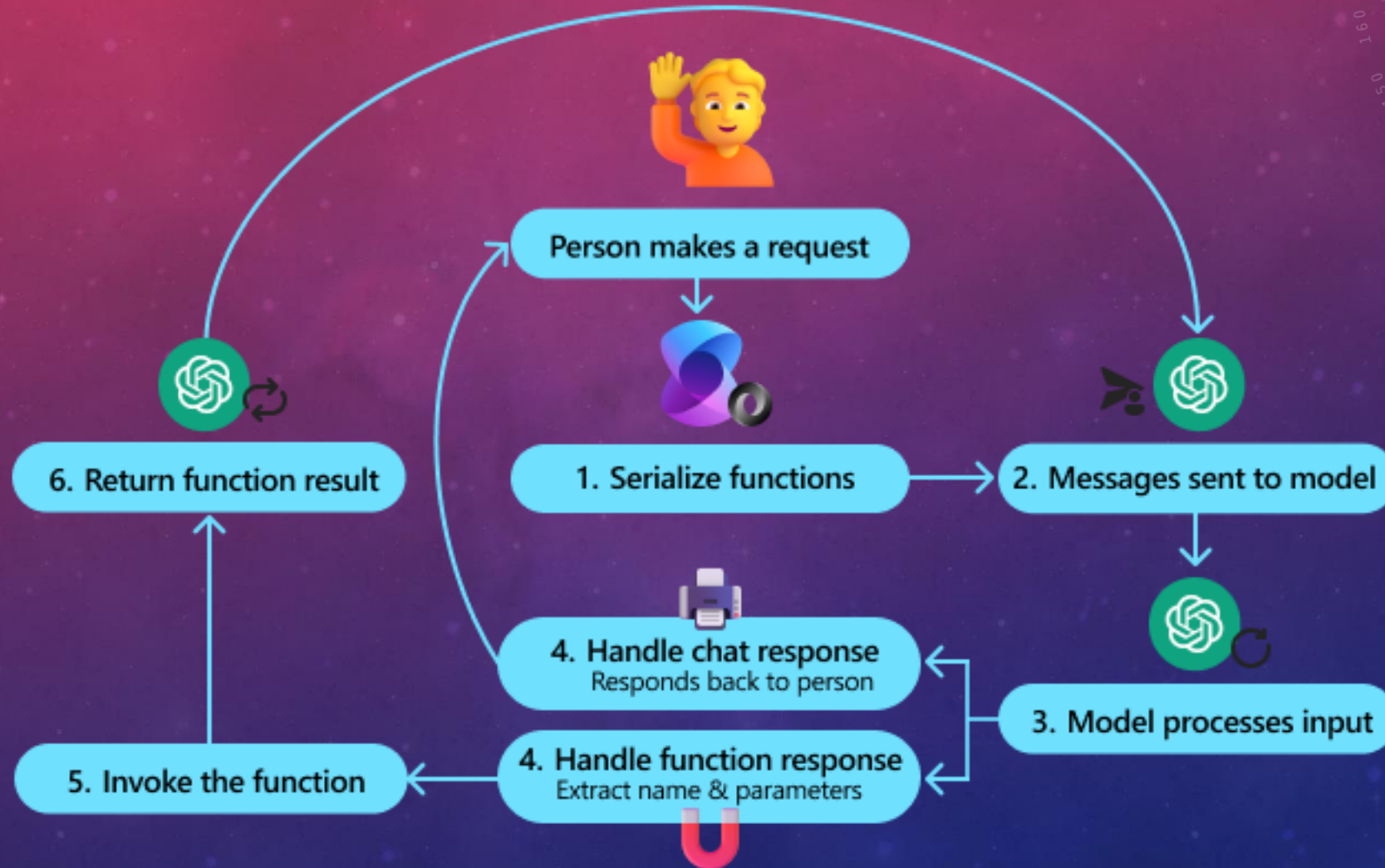
WHY SEMANTIC KERNEL – PLUGIN ?

- LLMs to interact with external systems, APIs, databases, and business logic
- Bridge AI and Traditional Software

WHAT IS SEMANTIC KERNEL – PLUGIN ?

- Collection of semantic functions (AI-driven) and native functions (traditional code)

FUNCTION CALLING - PLUGINS





DEMO

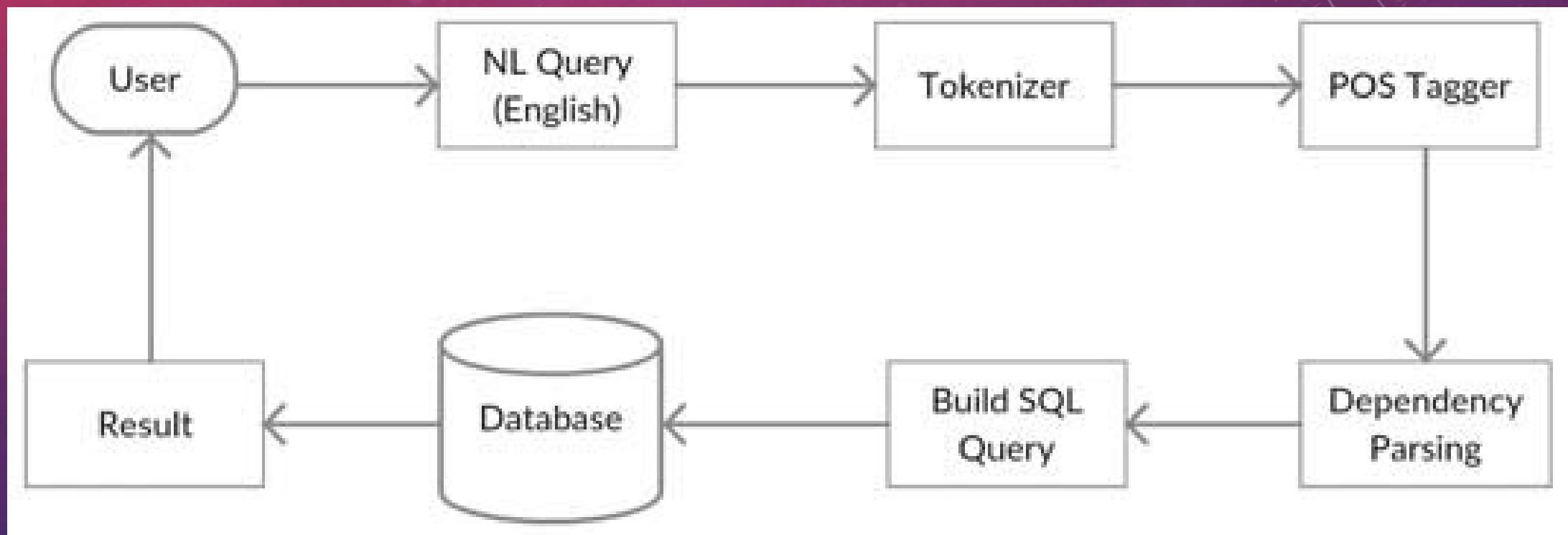
WHAT IS QUERY LLM ?



WHY QUERY LLM ?



QUERY LLM - ARCHITECTURE ?



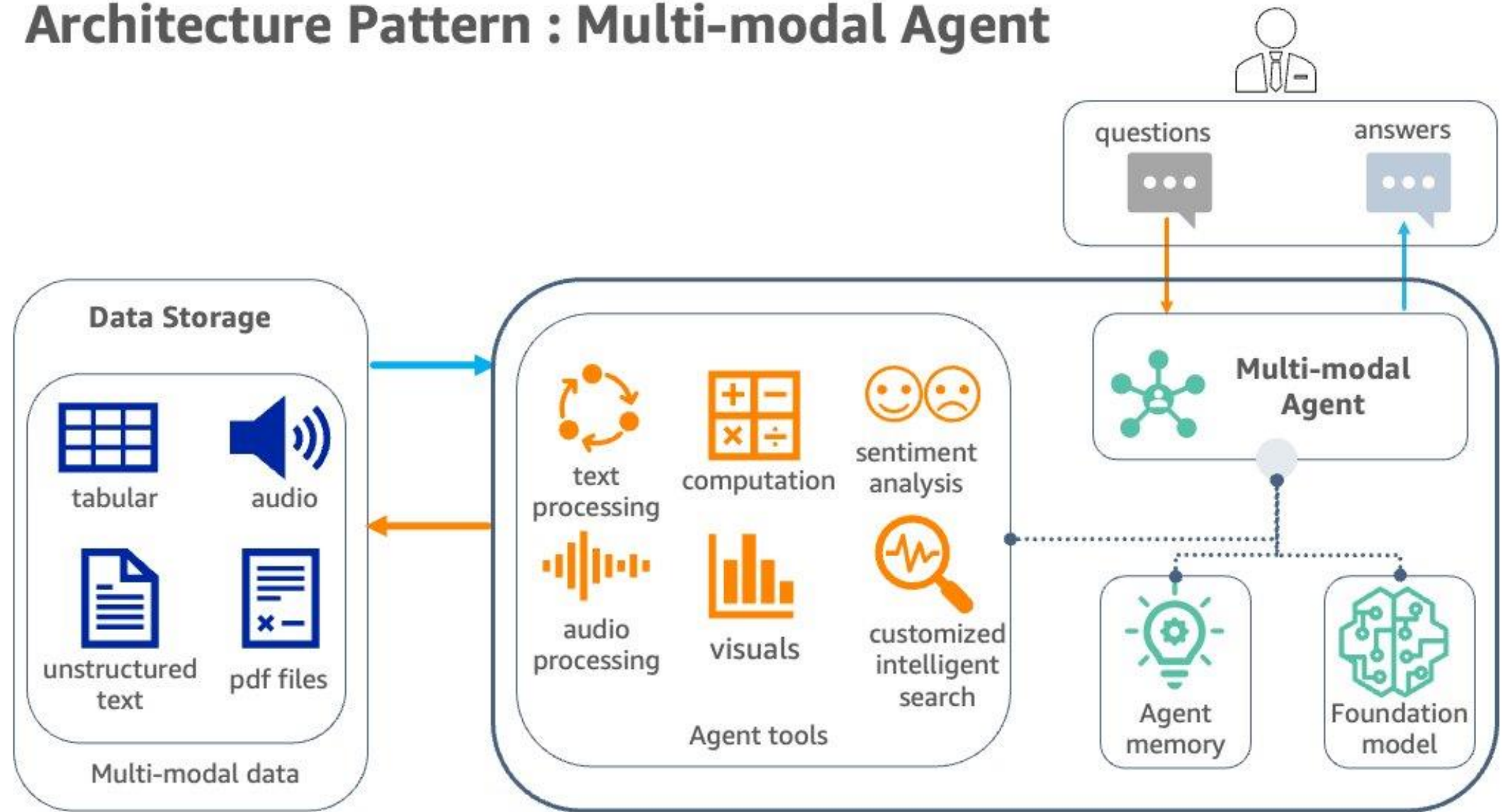


DEMO

WHAT IS MULTIMODAL AGENT?

- Process and integrate information from multiple data modalities—such as
- Text, images, audio, and even video

Architecture Pattern : Multi-modal Agent



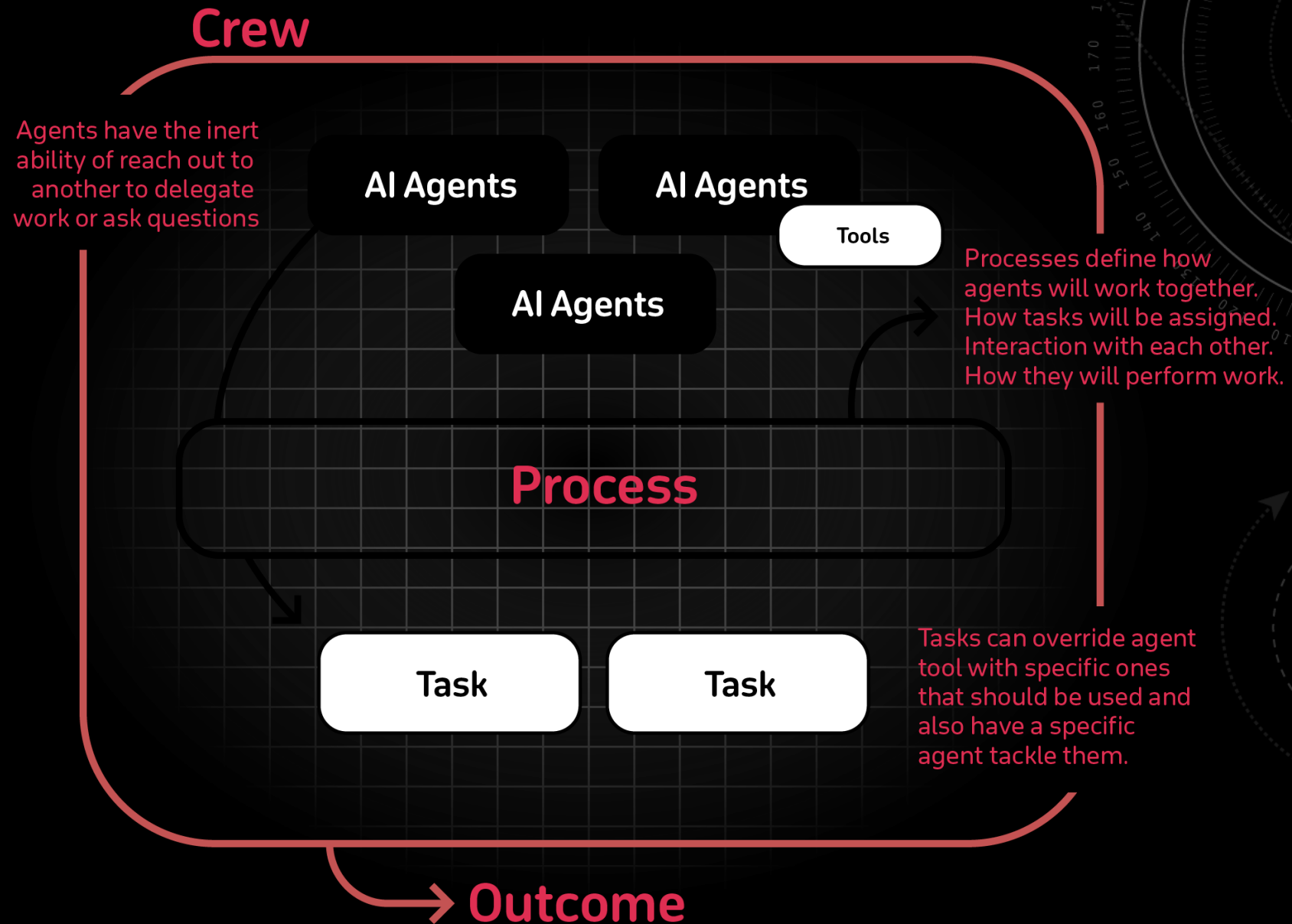
WHY CREW AI ?

- Multi-Agent Collaboration
- Replacing Traditional Backend Microservices
- Context Awareness & Memory
- Dynamic Orchestration – No Hardcoded Workflows
- Future-Proofing Web Architectures

WHAT IS CREW AI ?

- Multi-agent AI framework
- Collaborate, Delegate tasks, and autonomously execute workflows
- Eliminating the need for traditional backends.

CREW ARCHITECTURE



WHAT IS AN AGENT?

- AI-powered worker that performs actions.
- Role, Goal, and Behavior and interacts with other agents.

```
content_writer = Agent(  
    name="Content Writer",  
    role="Writes engaging articles",  
    goal="Generate high-quality AI research articles",  
    memory=True,  
    llm=ChatOpenAI(model="gpt-4"),  
    verbose=True  
)
```

WHAT IS TASK?

- Job assigned to an Agent.
- Provides structure and expected outcomes.

```
from crewai import Task

write_article = Task(
    description="Write a detailed 1000-word article on AI trends using the research tool.",
    agent=content_writer,
    expected_output="A well-researched AI trends article with references."
)
```

WHAT IS TOOL?

- Function or API call that an Agent uses to complete its task.

```
content_writer.tools = [ai_research_tool]
```


AGENT VS TOOL VS TASKS

Components	Analogy
Agent	A person in a company
Tool	A software/tool that a worker uses
Tasks	A task/project given to a worker

AGENT VS TOOL VS TASKS

Components	Analogy – Cooking
Agent	The chef (agent) prepares dishes based on customer orders.
Tool	The chef (agent) uses tools (knife, stove) to cook food.
Tasks	The order (task) tells the chef what dish to prepare.

AGENT VS TOOL VS TASKS

Components	Analogy – Newsroom
Agent	The journalist (agent) collects information and writes articles.
Tool	The journalist (agent) uses tools (Google, interviews, reports) to gather facts.
Tasks	The news editor assigns a task (e.g., "Write an article about AI trends").

WHEN AN AGENT USES A TASK DIRECTLY

- Research Agent is assigned to collect financial trends. Instead of calling an API or external database, it processes raw information using only an LLM.

AGENT USES A TASK AND THE TASK USES A TOOL

- A finance firm wants an AI system to generate market research reports for investment insights.
- The task requires multiple steps, where the agent handles logic but needs external data/tools to complete it.



DEMO

AUTO - RAG





DEMO

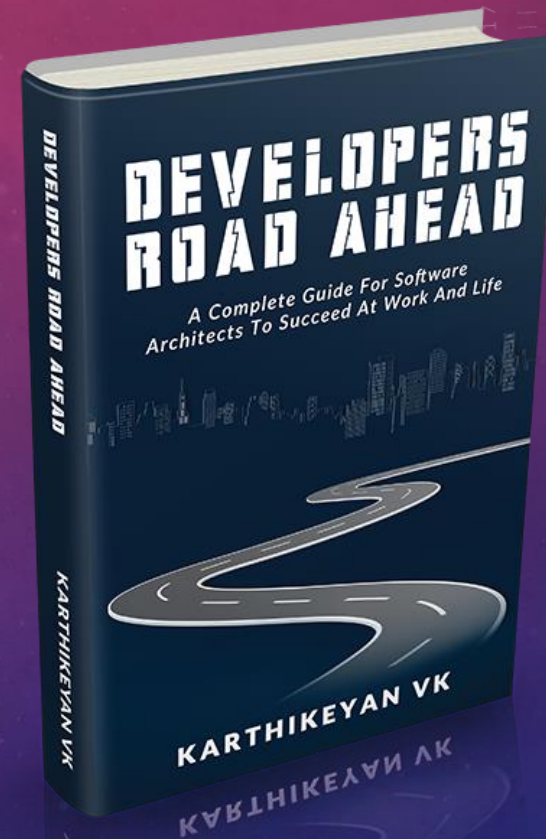
CONNECT WITH ME

LINKEDIN



DEVELOPERS ROAD AHEAD

COMPLETE GUIDE TO SUCCEED IN
SOFTWARE CAREER



The background is a gradient of deep purple and blue, filled with numerous out-of-focus circular light spots (bokeh) in various shades. Overlaid on the left side are several faint, white, semi-transparent circular patterns. These include concentric circles, dashed lines, and a prominent scale with numerical markings from 140 to 260 in increments of 10. Some of these patterns have small arrowheads pointing in different directions, suggesting a sense of motion or rotation.

THANK YOU!

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