

# Cross-Platform Multi-Agent Orchestration



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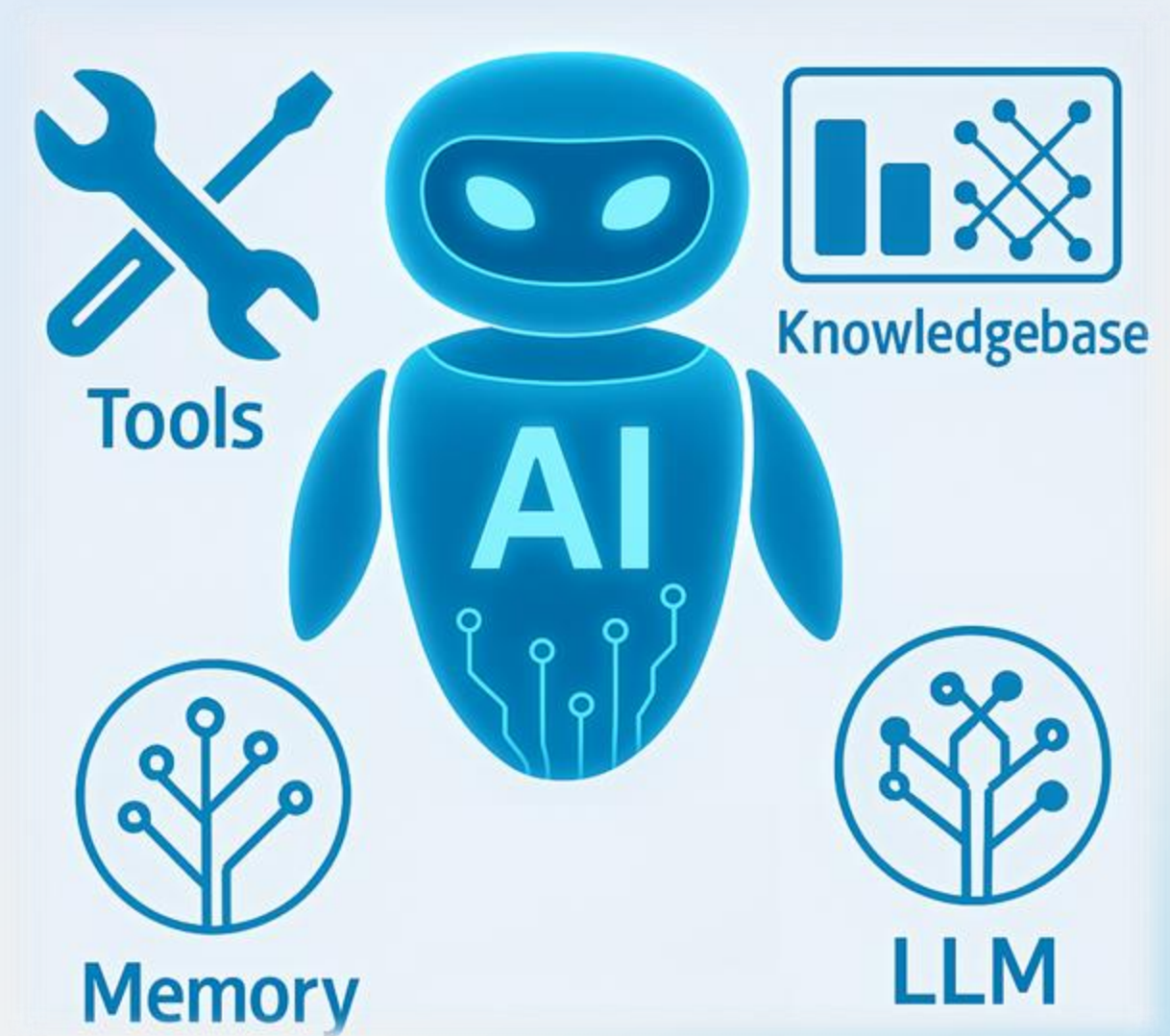
*Started in Full-stack Land, leveled up with distributed systems, now brewing AI magic at Microsoft.*

Blogs @ <https://prasanna.dev>

# Agent, Agentic Systems

- **fully autonomous systems** that operate independently over extended periods
- **prescriptive implementations** that follow predefined workflows.

[Building effective agents by Anthropic](#)



# Need for Cross Platform Agents



## Microservices DNA

Teams already own their stacks → agents will follow suit



## Tech Stack Diversity

Different teams, different tools — no one-size-fits-all



## Platform Teams as Enablers

Central teams offer agent frameworks & deployment options



## Run Anywhere

Agents must work across cloud, edge, and on-prem



## Avoid Lock-In

Open, flexible agents = future-ready architecture

# Platform choices (*for today*)

No Code



Microsoft  
Copilot Studio

Low Code



Azure AI  
Foundry

Pro Code



Semantic  
Kernel



# Scenario - Multi agent Travel Planner

Explorer Guide



Microsoft  
Copilot Studio

Culinary Advisor



Azure AI  
Foundry

Culture Guru



Semantic  
Kernel

# Build – No code agent



Microsoft  
Copilot Studio

Explorer Guide

Demo

# Build – Low code agent



Azure AI  
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Culinary Advisor

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# Walkthrough – Pro code agent

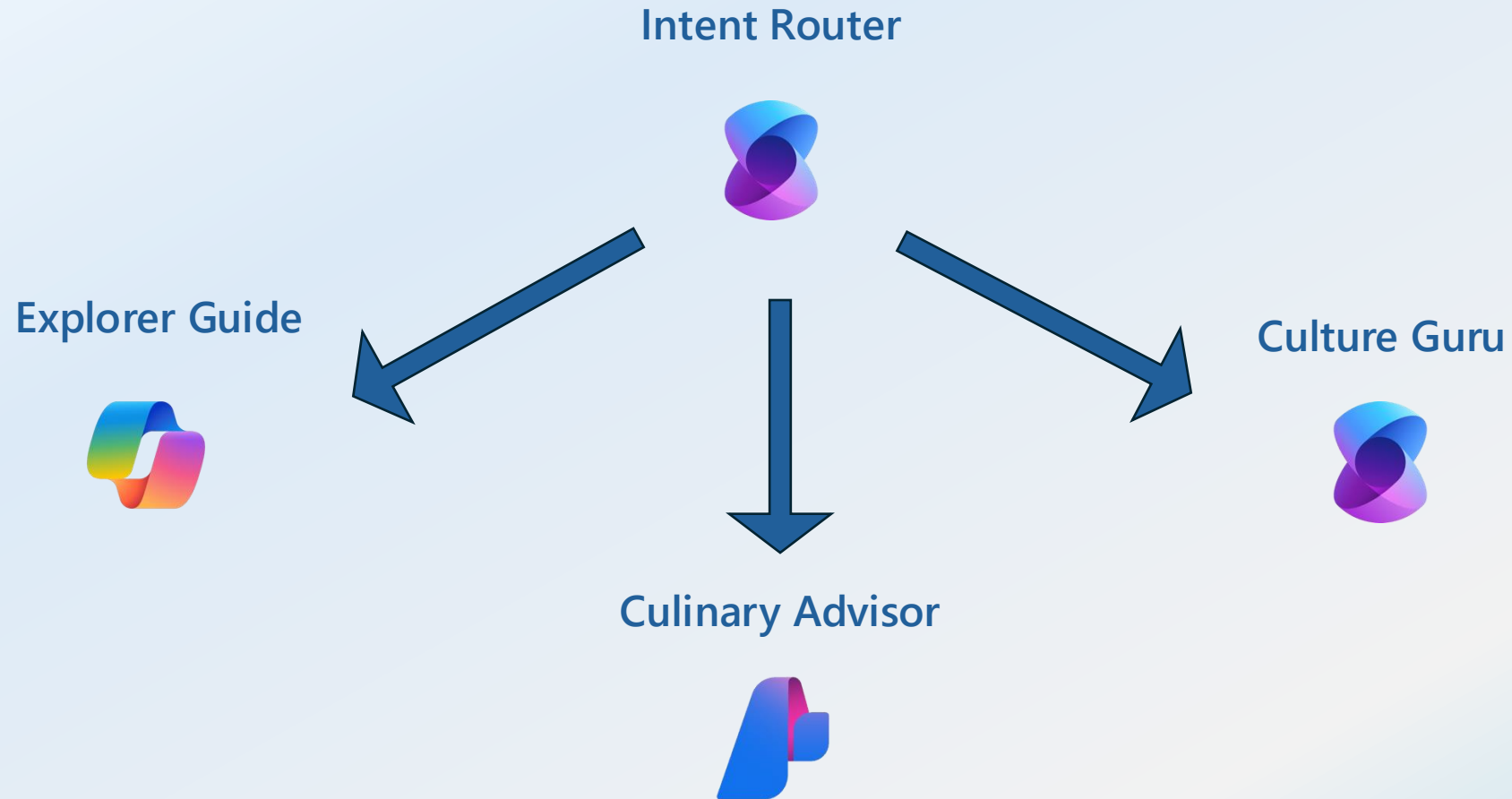


Semantic  
Kernel

Culture Guru

Code Walkthrough

# Demo – Orchestration



# Tracing using Open-Telemetry

operation_id	↑↓	id	↑↓	parent_id	↑↓	name
✓ 3a742980b656d27b7d6107aa44727444		0f2658c2ffd9ab6b		3a742980b656d27b7d6107aa44727444		POST /plan/invoke
✓ 3a742980b656d27b7d6107aa4472...		97e99a45b46e39e8		0f2658c2ffd9ab6b		turn-003-brvk4c6kz9o8lsjtrcvx5q
> 3a742980b656d27b7d6107aa...		ac02a6486c6ff4b3		97e99a45b46e39e8		setup_intents_principal_agent
> 3a742980b656d27b7d6107aa...		0ca1421c772a7f7c		97e99a45b46e39e8		list_messages
> 3a742980b656d27b7d6107aa...		934f872d23499817		97e99a45b46e39e8		AgentsOperations.get_agent
✓ 55df6cbd198d796c280c6d3ed128afd2		24c9717404cb8145		55df6cbd198d796c280c6d3ed128afd2		POST /plan/invoke
✓ 55df6cbd198d796c280c6d3ed128...		0bad4d5404c26283		24c9717404cb8145		turn-001-brvk4c6kz9o8lsjtrcvx5q
✓ 55df6cbd198d796c280c6d3ed...		a32b9dc37ab9c170		0bad4d5404c26283		setup_intents_principal_agent
> 55df6cbd198d796c280c6...		b0b8f6abe21a3916		a32b9dc37ab9c170		invoke_agent intent_router_principal_agent
> 55df6cbd198d796c280c6...		0b39e7190e3360f7		a32b9dc37ab9c170		invoke_agent explorer_guide
✓ bbf2e415d00c5d772af0e7cb3e60bf22		9d1f1633ac3b4749		bbf2e415d00c5d772af0e7cb3e60bf22		POST /plan/invoke
✓ bbf2e415d00c5d772af0e7cb3e60b...		dda533a58785348b		9d1f1633ac3b4749		turn-002-brvk4c6kz9o8lsjtrcvx5q
✓ bbf2e415d00c5d772af0e7cb3...		420d181e92395945		dda533a58785348b		setup_intents_principal_agent
> bbf2e415d00c5d772af0e7...		fe1a2b270ddc998d		420d181e92395945		invoke_agent intent_router_principal_agent
> bbf2e415d00c5d772af0e7...		036a24a806e0fe0b		420d181e92395945		invoke_agent culture_guru

# Challenges with Multi-agent systems

## **Orchestration Complexity**

Multiple patterns, coordination logic varies, response merging needed

## **Communication Overhead**

Risk of infinite loops, excessive agent chatter, non-determinism

## **Evaluation Difficulties**

Hard to benchmark, unpredictable behaviors, task-specific metrics

## **Discoverability & Publishing**

Agents must be findable, reusable, and well-documented

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## **Versioning & Compatibility**

Managing updates, ensuring backward compatibility

## **Autonomy vs. Coordination**

Balancing independent decisions with system-wide goals

## **Goal Alignment**

Conflicting objectives or incentives across agents

# References

- Bringing in Copilot studio into Semantic Kernel – [Directline Approach](#)
- Azure AI Agent in Semantic Kernel - [Learn Docs](#)
- OpenTelemetry [GenAI metrics](#)

## Questions !!



**Thank You😊**