**What is Multi-Agent Coordination Patterns (MCP) ?**

Multi-Agent Coordination Patterns (MCP) refer to the organizational structures and communication protocols that dictate how multiple independent AI agents collaborate to achieve a shared, complex goal. Rather than relying on a single, monolithic agent, multi-agent systems use these patterns to define the flow of control and information among specialized agents, improving efficiency and scalability. Common patterns include the Orchestrator/Supervisor pattern, where a central agent delegates tasks to worker agents and synthesizes the final result; the Sequential Pipeline, where agents are arranged in a fixed chain and the output of one becomes the input for the next; the Parallel Fan-Out/Gather, where tasks are run simultaneously and the results are merged later; and the Handoff pattern, where an agent dynamically passes control and context to another, more suitable agent. In the context of modern AI, MCP also sometimes refers to the Model Context Protocol, which is a standardized framework that ensures agents have a consistent way to access and share external tools and memory, enabling these coordination patterns to function reliably.

**what is azure ai foundry - agent as a service?**

The Azure AI Foundry Agent Service, often summarized as "Agent as a Service," is a fully managed cloud platform provided by Microsoft within the broader Azure AI Foundry environment, designed to help developers securely design, deploy, and scale intelligent AI agents with ease. It acts as a comprehensive runtime environment, handling the complex infrastructure and operational concerns necessary for production-grade agent applications. This service connects the core components of the Azure AI ecosystem—such as large language models (including models from OpenAI and various open-source providers), tools, and data sources like Azure AI Search for retrieval-augmented generation (RAG)—into a single, cohesive unit. It simplifies the development process by managing orchestration, function calling, memory (conversation history), and enterprise-grade features like security, monitoring, and compliance, allowing developers to focus primarily on defining the agent's logic, custom instructions, and task execution workflows, including multi-agent coordination patterns. This platform ensures that sophisticated agents can automate complex business processes reliably and at scale.