Getting Started with Agentic AI and MCP servers

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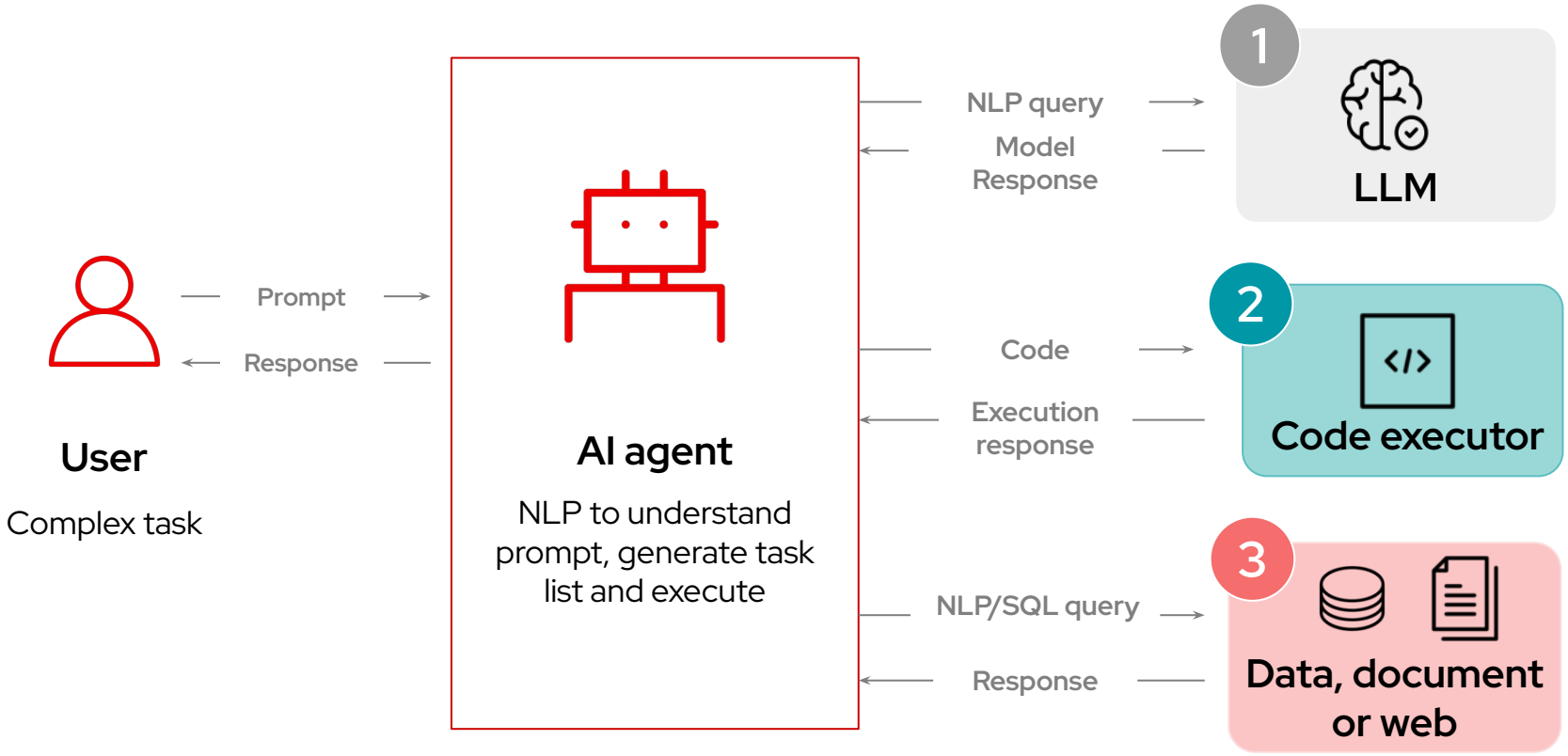
Intro to Agentic AI

AI agents integrate models, functions & tools

Gen AI Models, Predictive AI Models, Code Functions, Search & more



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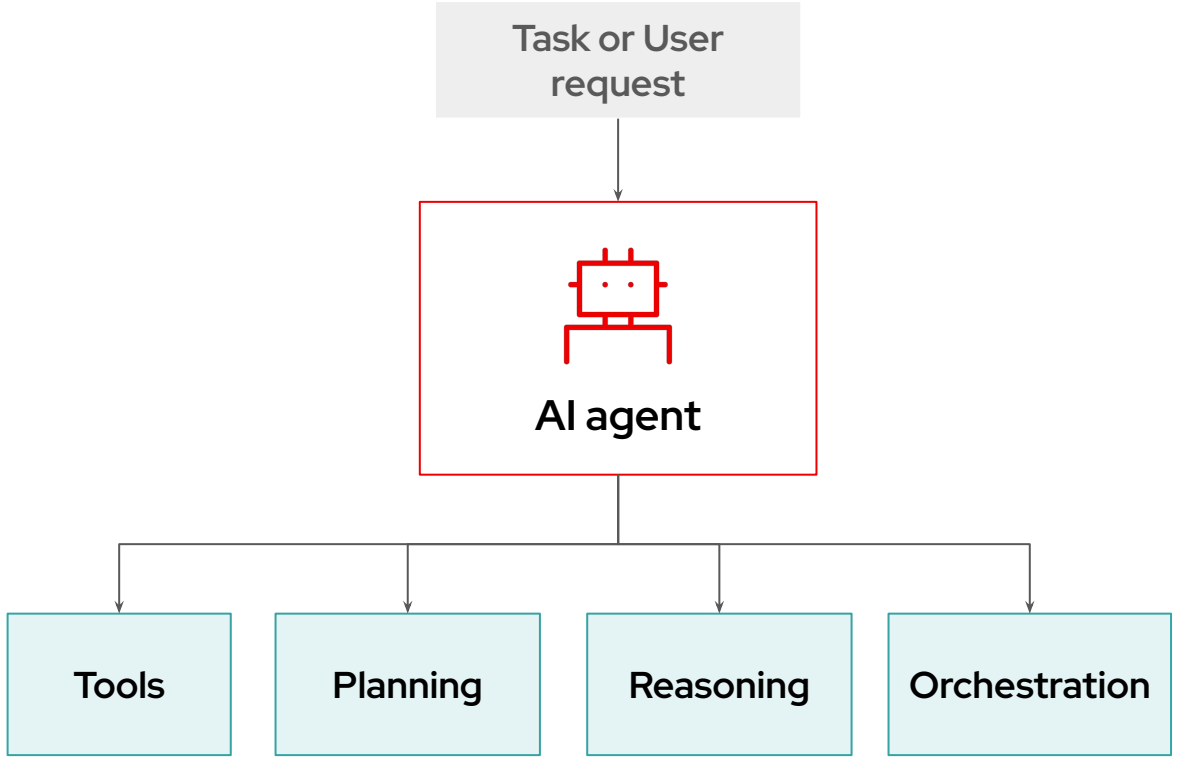
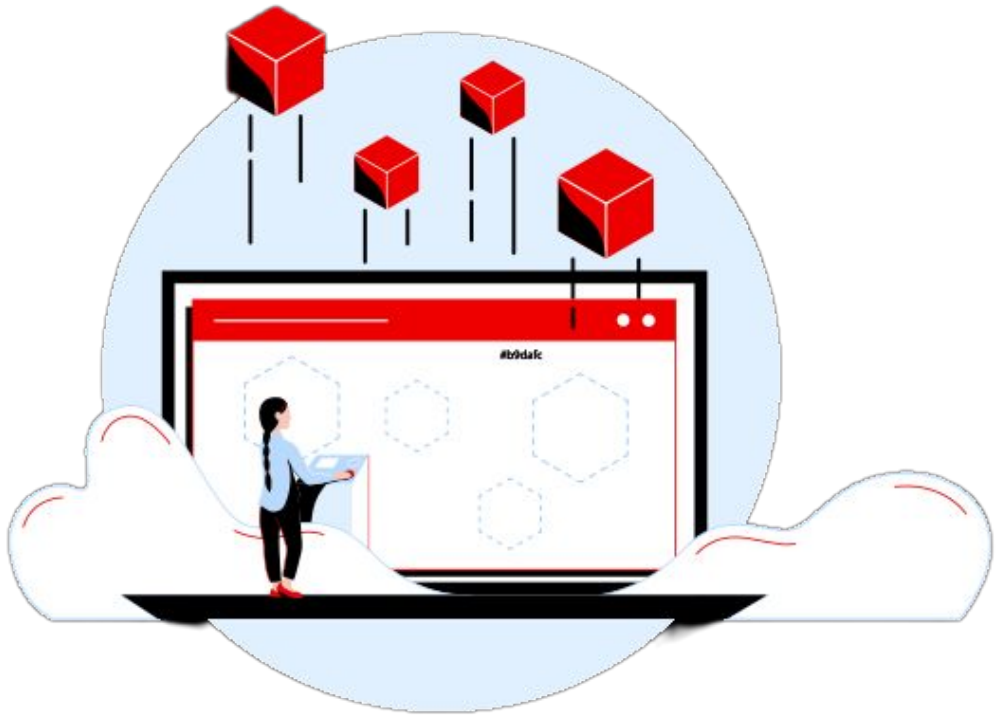
The components of an AI Agent system



- **Tool Utilization:** Leverages external tools to gather data and perform tasks.
- **Planning and Execution:** Develops and executes multistep plans to achieve goals autonomously.
- **Reasoning:** Applies logic and contextual understanding to make informed decisions.
- **Orchestration:** Coordinates actions, tools, and agents to dynamically adjust and complete tasks.
- **Communication protocols:** enables the connections between the components.

Red Hat AI provides an agile, stable foundation to accelerate the development and deployment of AI agentic workflows.

- Offers built-in agent frameworks with Llama Stack, and standardized communication protocols (MCP).
- Provides the flexibility to integrate preferred tools like LangChain and Crew AI.
- Allows running and managing agents as microservices.
- Simplifies production deployment by managing LLM serving and scaling.



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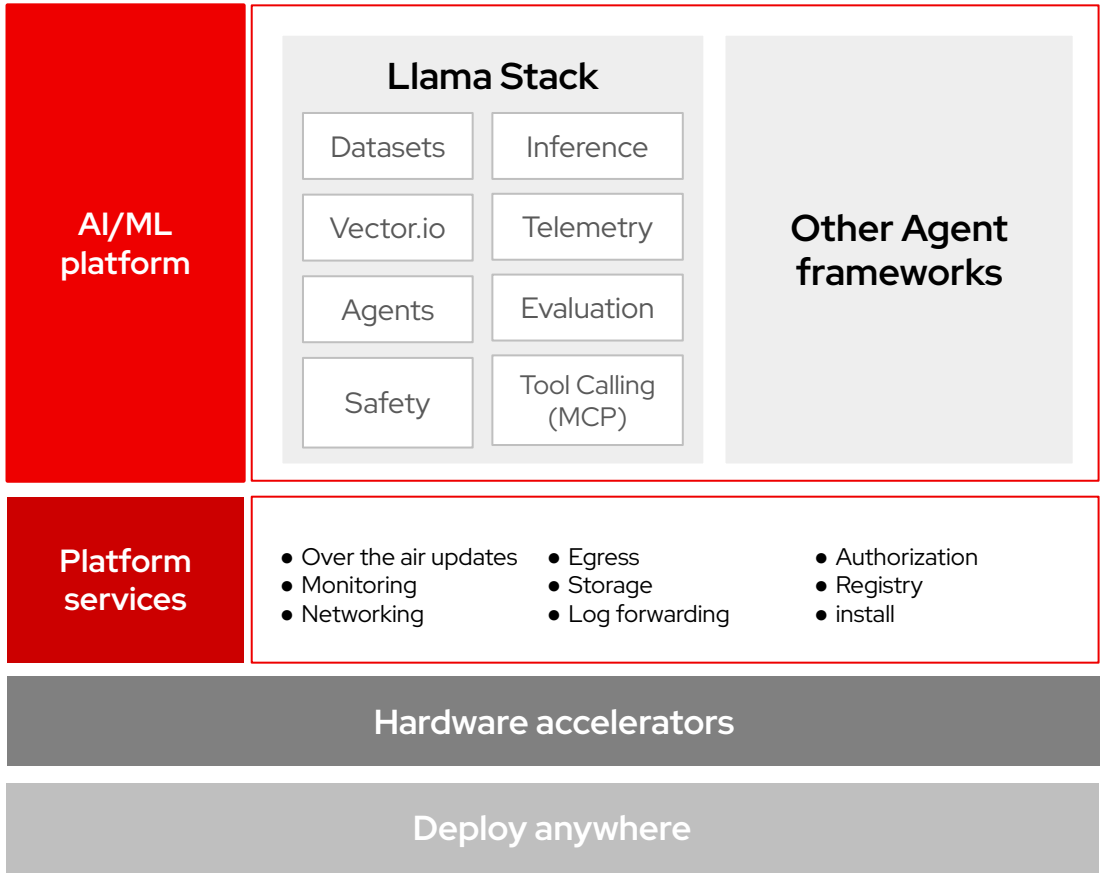
A modular approach to building AI agents



Red Hat AI allows to:

- Build agents using **Llama Stack's native capabilities and implementations**.
- **Bring compatible Llama Stack implementations** to OpenShift AI.
- **Use your own agent framework** and selectively incorporate Llama Stack APIs.
- **Build with Core Primitives** and manage your own agent framework as a standard workloads.

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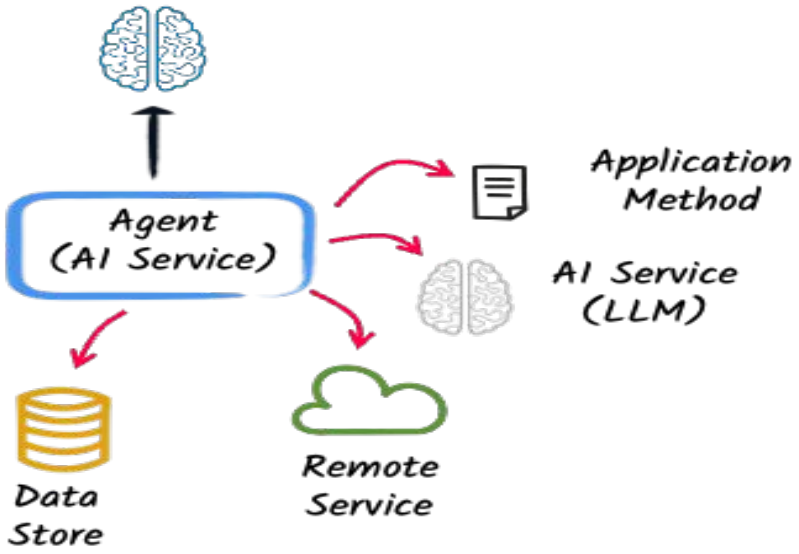
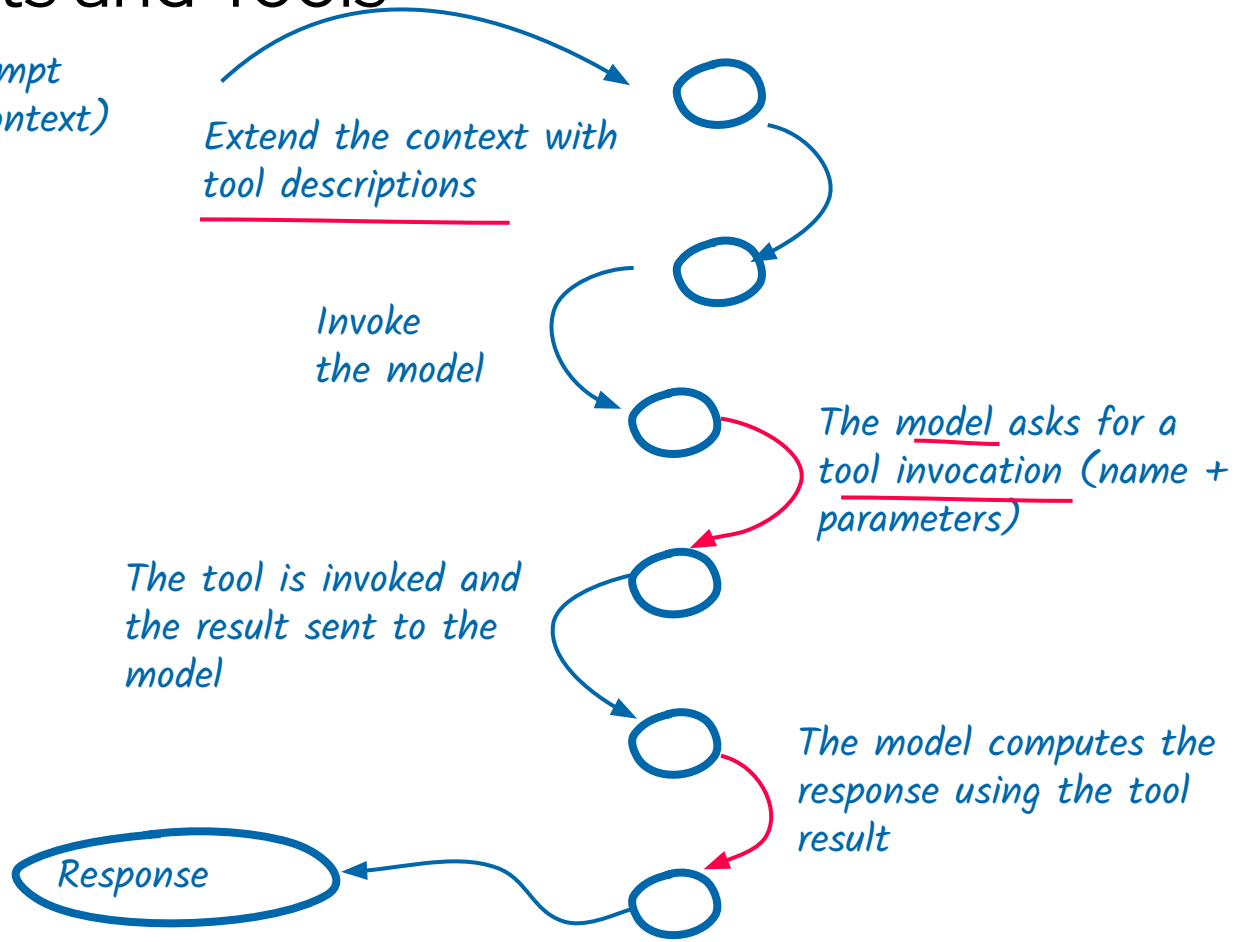
AI Agents and Tools

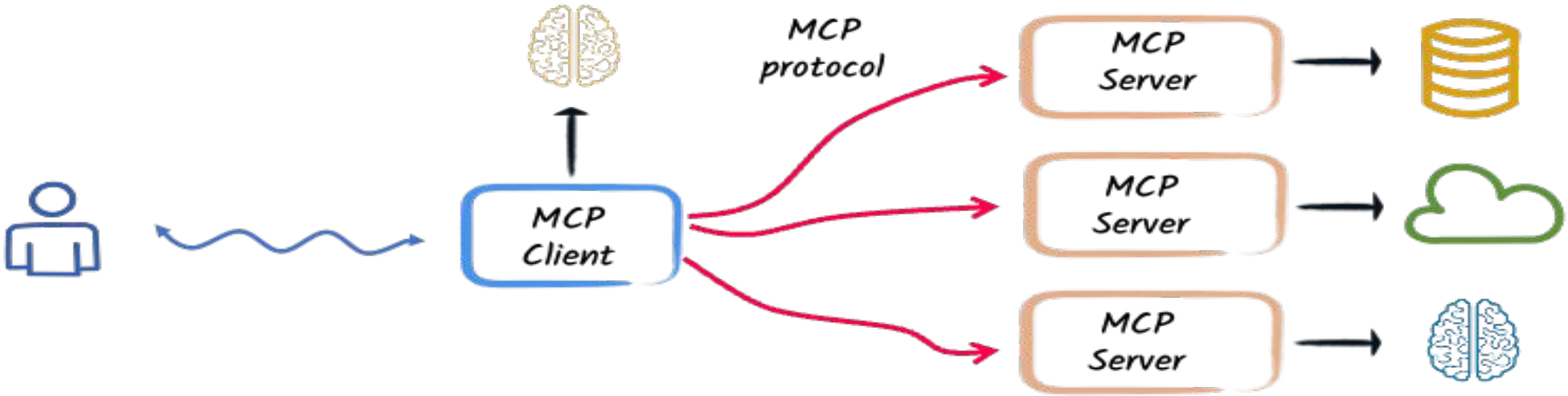


Tools require memory and a reasoning model



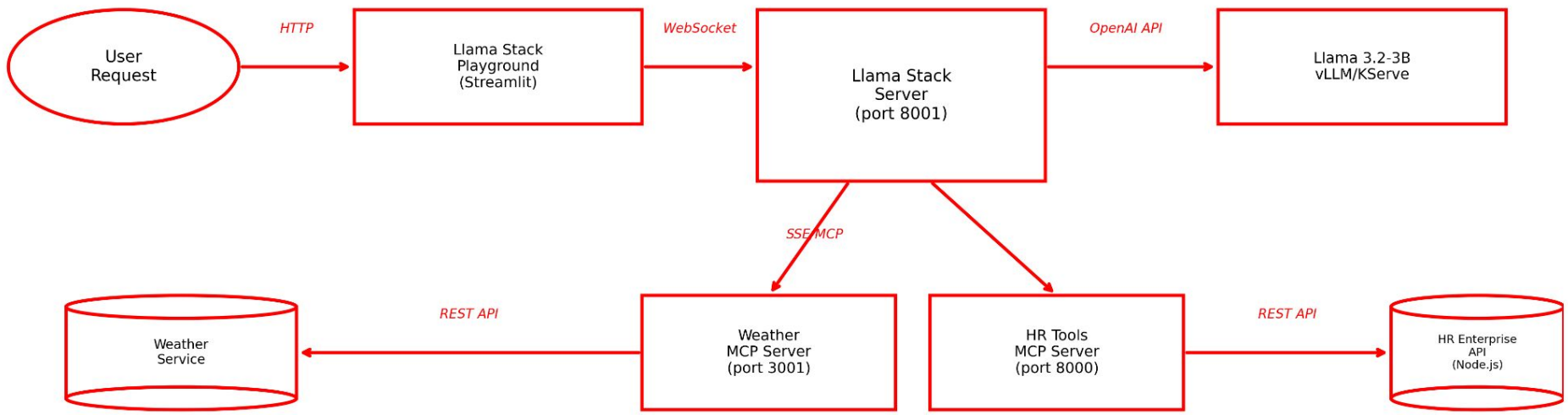
Model Context Protocol (MCP)

The Model Context Protocol,introduced by Anthropic in November 2024, is an **open standard** that enables developers to build secure, two-way connections between their data sources and AI-powered tools.



Instead of exposing tools from your code,
discover and use remote services

Llama Stack with MCP Servers Architecture



OpenShift / Kubernetes Infrastructure
Pods • Services • Routes • InferenceService • ServingRuntime

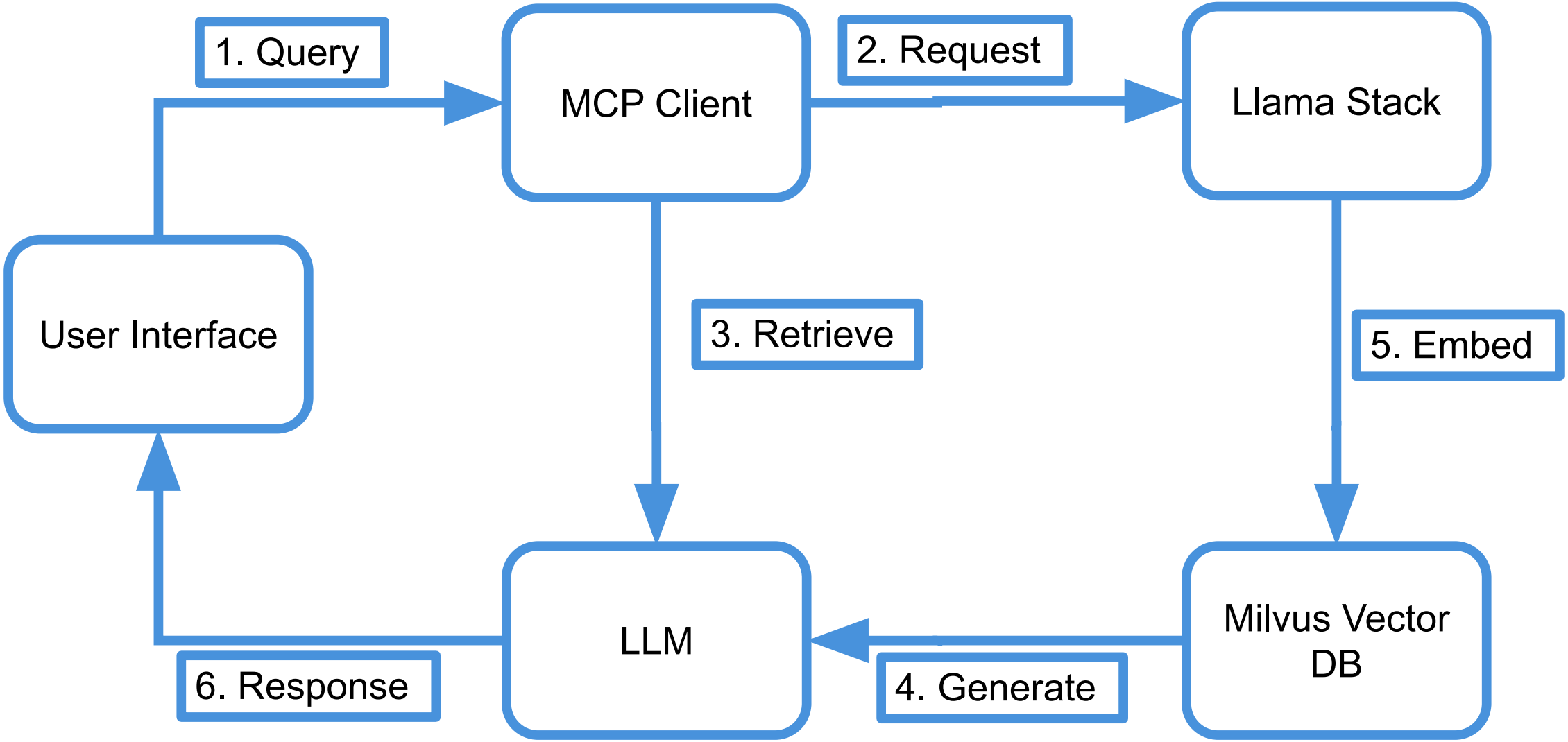
Key Technologies:

- Model Context Protocol (MCP): Tool integration framework
- Server-Sent Events (SSE): Real-time communication
- vLLM: High-performance LLM inference engine
- Helm Charts: Kubernetes deployment automation

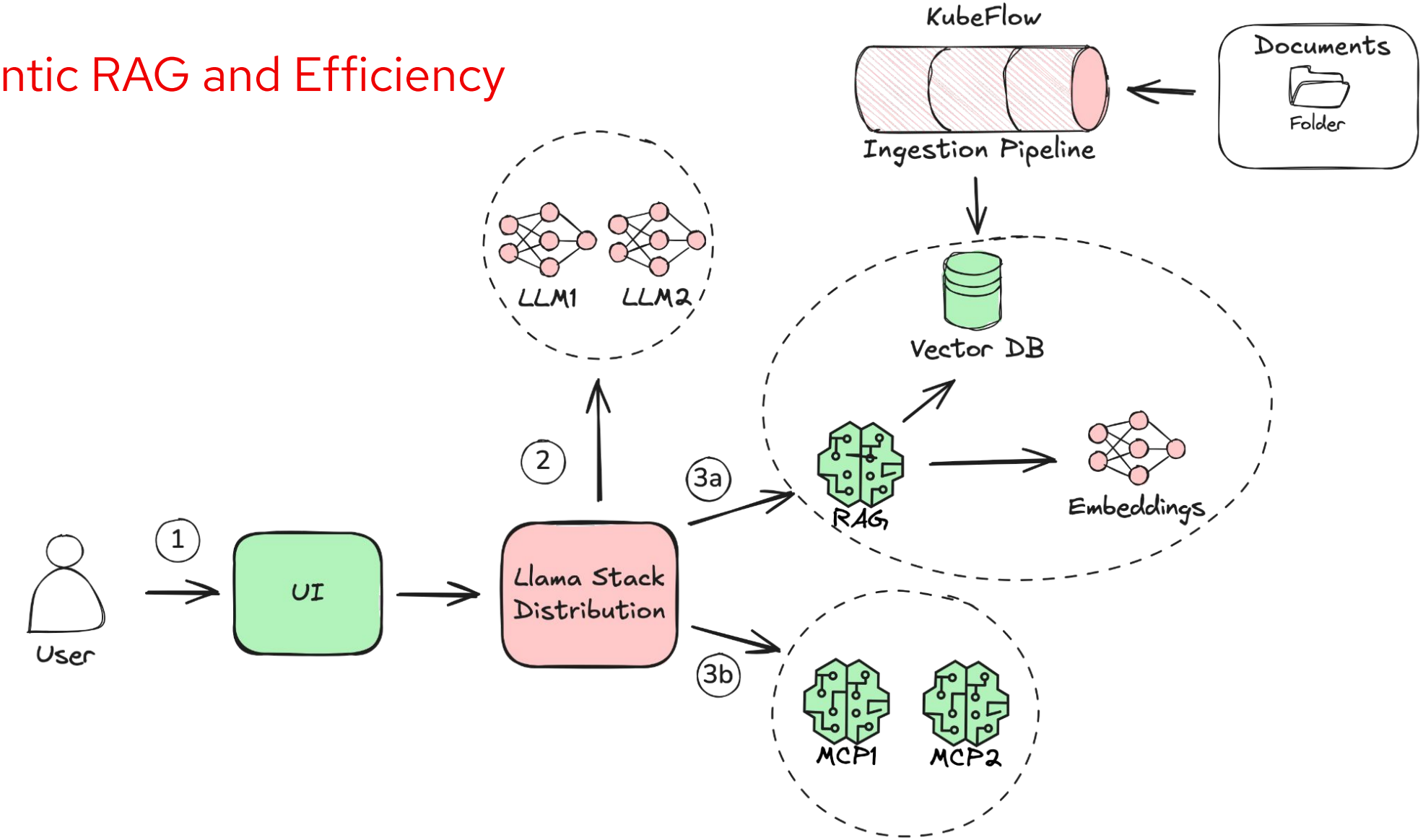
Available Tools:

- Weather forecasts and alerts
- Employee vacation balance queries
- Vacation request creation
- HR data access and management

Agentic AI Lab Architecture



Agentic RAG and Efficiency



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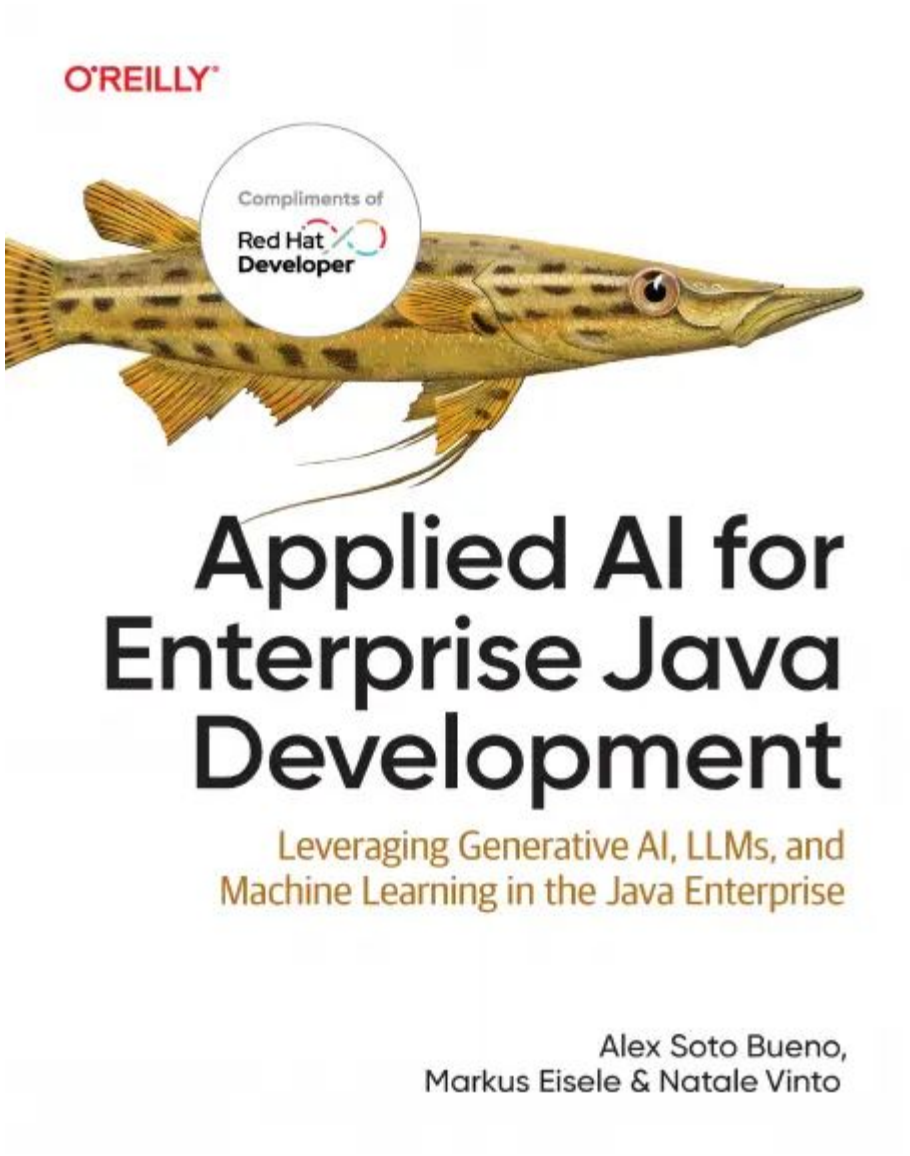

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Session 6: 16:00 - 17:00

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