

MCP architecture deep dive with agents and LLMs

Overview of MCP

In this lesson, we dove into MCP, its architecture, and how it functions. Here's a summary of what we covered:

- **MCP Basics:**
 - Explored how MCP works and its general architecture.
 - Set the stage for understanding MCP theoretical concepts before diving into coding.
- **MCP Hosts and Clients:**
 - An **MCP Host** is an application containing an MCP client.
 - Examples of MCP hosts include applications like **VS Code** and frameworks like **OpenAI Agents SDK**.
- **MCP Clients:**
 - The role of an **MCP Client** is to enable communication with MCP servers.
 - It's essentially a class or object within the host for interaction and communication.

MCP Servers

We examined what MCP servers are and their modular nature:

- **Modularity:**
 - MCP servers typically connect one-to-one with particular tools, apps, or data, although some, like Airbnb or Slack servers, can handle multiple tools.
- **Communication:**
 - Servers interact through existing APIs (e.g., Slack API) or via local functions, enabling flexible data processing like mathematical computations.

Workflow

We walked through a sample workflow to illustrate MCP in action:

- **Example Scenario:**
 - User requests weather information, showcasing how the MCP structure processes and retrieves data—**MCP Client** communicates with a server tool to fetch and return information effectively.

Local vs. Remote

Where MCP processes occur can vary:

- **Local vs. Remote:**

- MCP clients and hosts are often local, but this can change to remote services, enhancing flexibility.

- **Server Operations:**

- Servers might operate locally (spinning individual instances on each machine) or remotely, depending on configurations.

Future of MCP

We also speculated on where MCP might be heading:

- **Web Services Transition:**

- Predicted shift from local MCP hosts to web-hosted services.

- **Service Distribution:**

- Concluded with insights on how MCP servers might evolve to cater better to diverse processing needs.

By gaining these foundational insights, we are now better prepared for future lessons where we'll focus on building MCPs practically. Let's move on to the next video for more exploration!