# Model Context Protocol

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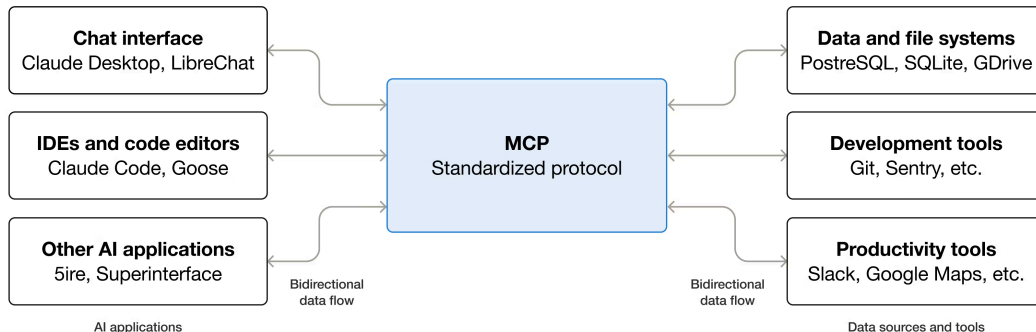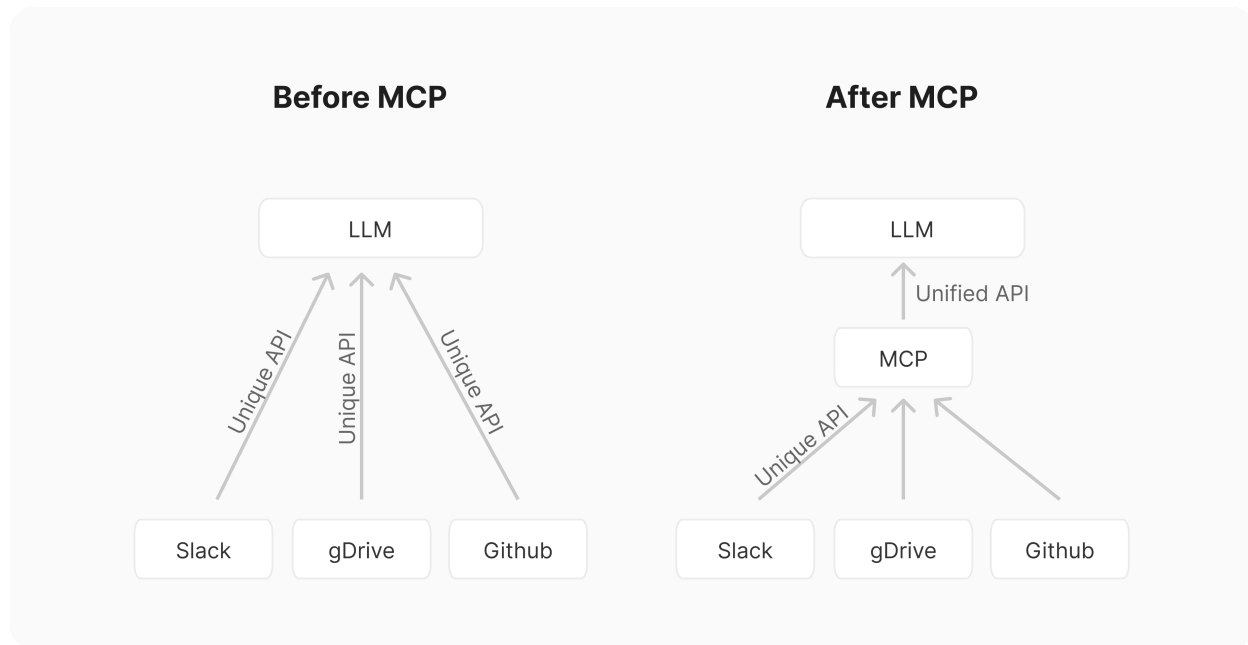
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In Today's session

# MCP by Anthropic

*The Model Context Protocol is an open standard that enables developers to build secure, two-way connections between their data sources and AI-powered tools. - Anthropic*
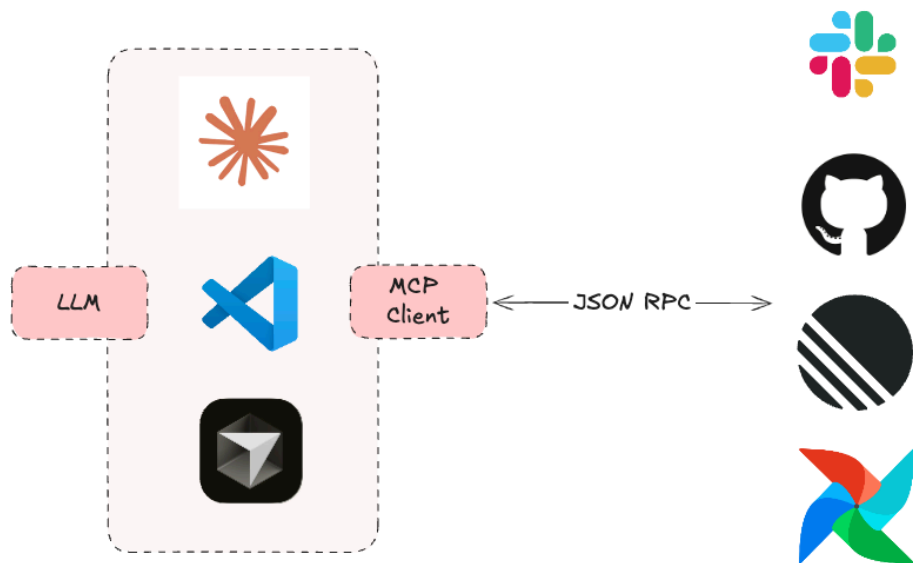
| Chat interface | |
|---|---|
| **Chat interface**<br>Claude Desktop, LibreChat | **Data and file systems**<br>PostreSQL, SQLite, GDrive |
| **IDEs and code editors**<br>Claude Code, Goose | **Development tools**<br>Git, Sentry, etc. |
| **Other AI applications**<br>5ire, Superinterface | **Productivity tools**<br>Slack, Google Maps, etc. |

**MCP**
Standardized protocol

Bidirectional data flow

Bidirectional data flow

AI applications

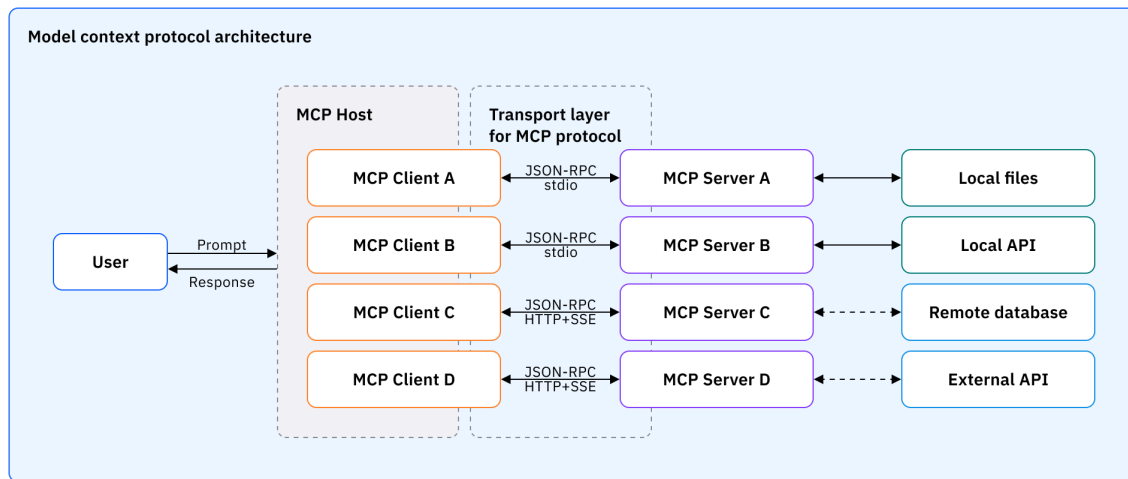Data sources and tools

# Why MCP?

Life before MCP

# MCP world of opportunities

# MCP Architecture

- **MCP Host**: The AI application that coordinates and manages one or multiple MCP clients

- **MCP Client**: A component that maintains a connection to an MCP server and obtains context from an MCP server for the MCP host to use

- **MCP Server**: A program that provides context to MCP clients

Demo

# MCP Primitives

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- Notifications

# MCP Primitives

- **Notifications**
- **Server**
  - Tools
  - Resources
  - Prompts

# MCP Primitives

- **Notifications**
- **Server**
  - Tools
  - Resources
  - Prompts
- **Client**
  - Sampling
  - Roots
  - Elicitation

# MCP Server Primitives

| Feature | Examples | Who controls it |
|---|---|---|
| Tools | Search flights<br>Send messages<br>Create calendar events | Model |
| Resources | Retrieve documents<br>Access knowledge bases<br>Read calendars | Application |
| Prompts | Plan a vacation<br>Summarize my meetings<br>Draft an email | User |

# MCP Client Primitives

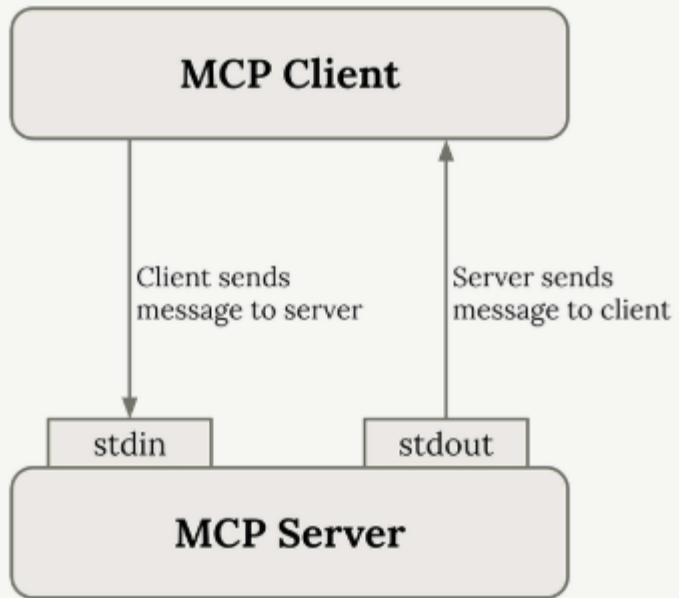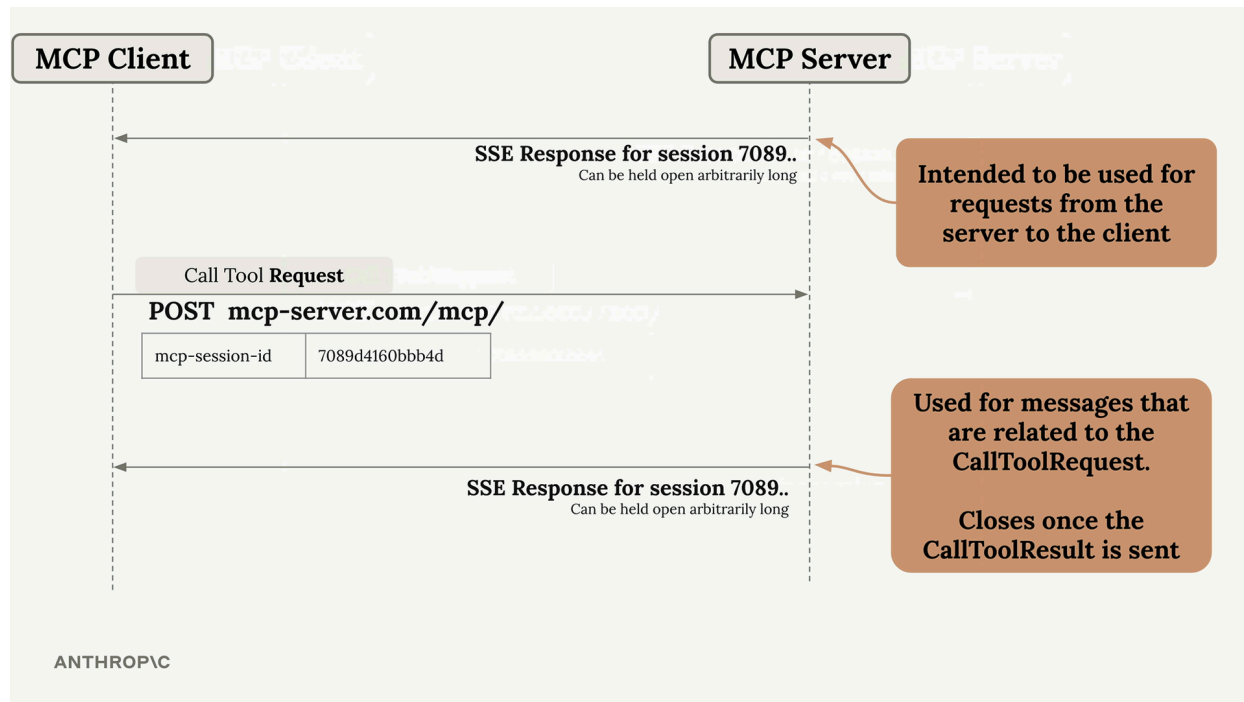| Feature | Example |
|---|---|
| Sampling | Handing off LLM Calling responsibility to client |
| Roots | Read specific files |
| Elicitation | Ask user details |

Demo

# MCP Communication

# MCP Communication

- MCP communicates via JSON
- JSON can be sent over by multiple ways
  - Stdio
  - Streamable HTTP

# Stdio

# Streamable HTTP

# MCP + Dev Workflow

# Thank You