Agentic AI Experience for Cisco Security Developers

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BRKDEV-1187

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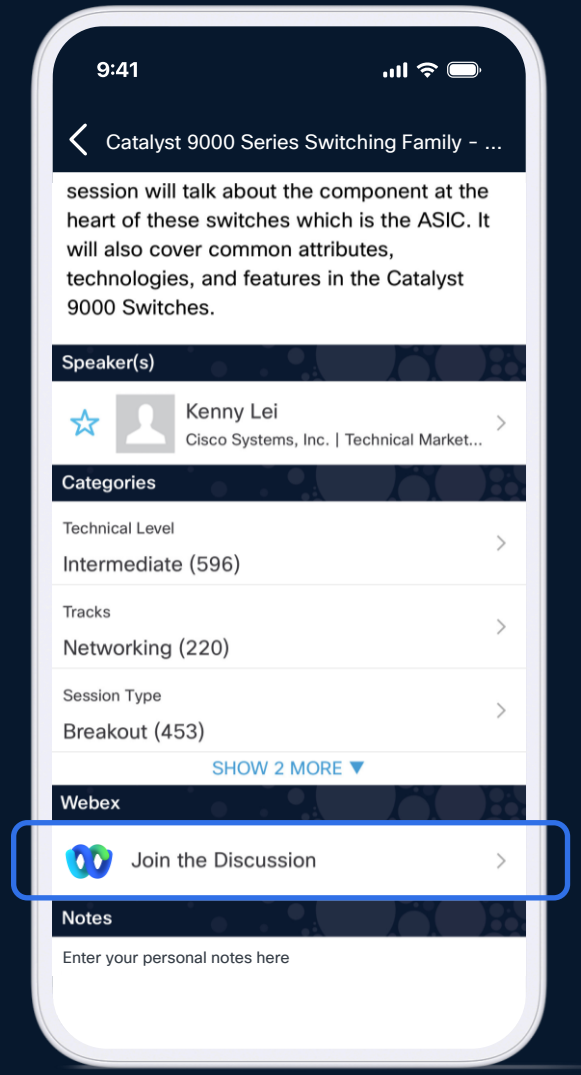

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Speaker Bio: Kalyana Sundharam Karunanidhi

- I live near Los Angeles, United States with my wife & 2 daughters.
- With Cisco since May 2015.
- Lead Architect - Security Cloud Control.
- Started my career as a Software Engineer in 2004.
- Building cloud-native platform solutions.
- I enjoy traveling long drives with my family.
- Love to play Badminton, Chess & Hockey. Still playing US Senior Badminton open tournaments.





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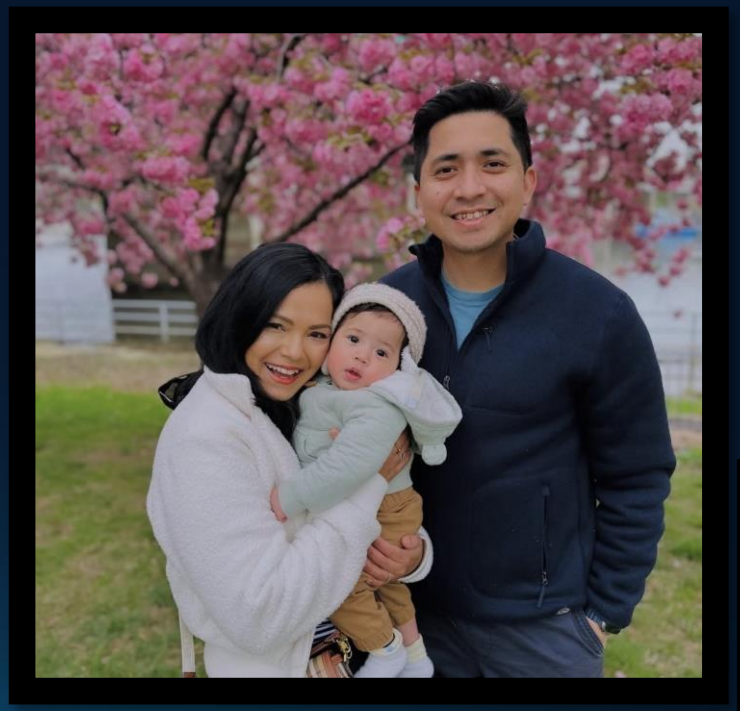
Speaker Bio: Pritom Gogoi

- I live in San Francisco Bay Area, United States with my wife and son
- Technical Leader at Cisco
- With Cisco since August 2018
- Passionate about building cloud-native platforms and distributed systems
- Architecting agentic platforms for developers.
- Loves going on long bike rides and exploring new trails.





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Session Expectations

What we'll cover and what we won't

Agenda

1. The Developer Integration Landscape - Today
2. Agentic AI – The Paradigm shift
3. The Missing Contract - Introducing MCP
4. Agentic Experience in Action (Live Demo)
5. Key Takeaways

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The Developer Integration Landscape – Today

Where we are: Direct APIs, scripts, SDKs

How Developers Integrate APIs today

1. Direct API calls
2. SDKs and client libraries
3. Custom scripts and glue code
4. Workflow orchestration

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Common Integration Patterns

1. Pagination loops (pages, cursor)
2. Error handling and retires
3. ID chaining across API calls
   (e.g get_org -> get_orgId -> get_users)

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Developer's Pain Points

1. Large amount of boilerplate code
2. Fragile, multistep workflows
3. Small API changes break integrations

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Agentic AI: The Paradigm Shift

From scripts to agents – what changes and why it matters

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Agentic AI

A system where you provide a goal,
not step-by step instructions

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The Paradigm shift

Imperative

1. "Call API A, then B and C"
2. Developers manage control flow

Declarative

1. "Get all users in my organization"
2. Agent determines how to achieve the outcome

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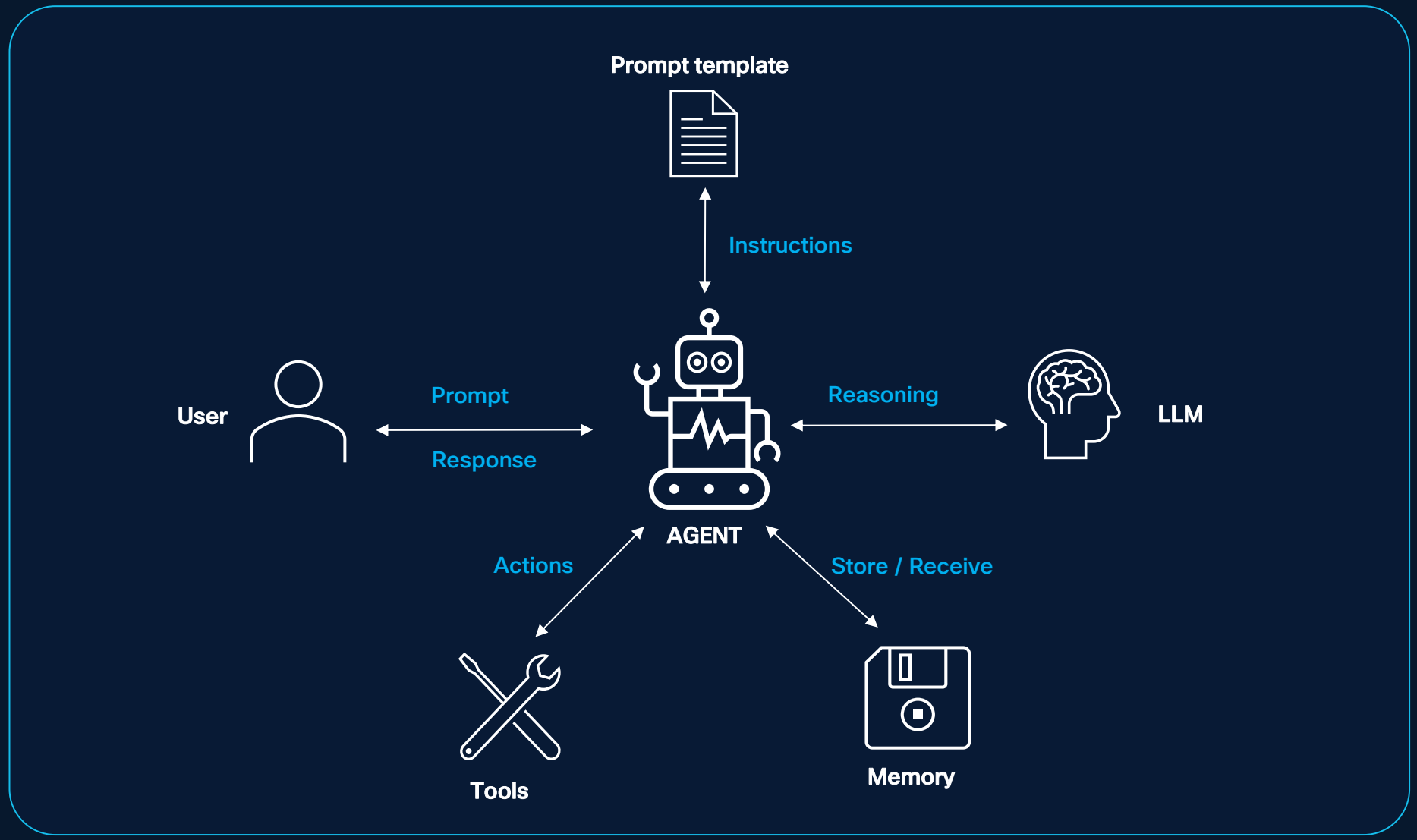
Agent - Building Blocks



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APIs were designed for humans, not LLMs

1. Deterministic Caller
2. Explicit Intent
3. Human Judgement
4. Documentation driven workflows

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The Missing Contract: Introducing MCP

Introduction to MCP (Model Context Protocol)

1. A standard protocol for exposing capabilities to agents
2. Defines how tools are
   - Described
   - Discovered
   - Invoked
3. Separates reasoning from execution

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What MCP guarantees

1. Standard, interoperable tool contract
2. Explicit, deterministic tool invocation
3. Clear control & security workflows
4. Framework & language agnostic

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What MCP DOES NOT do

1. NO autonomy
2. NO reasoning
3. NO hallucinations prevention
4. NO security out of box

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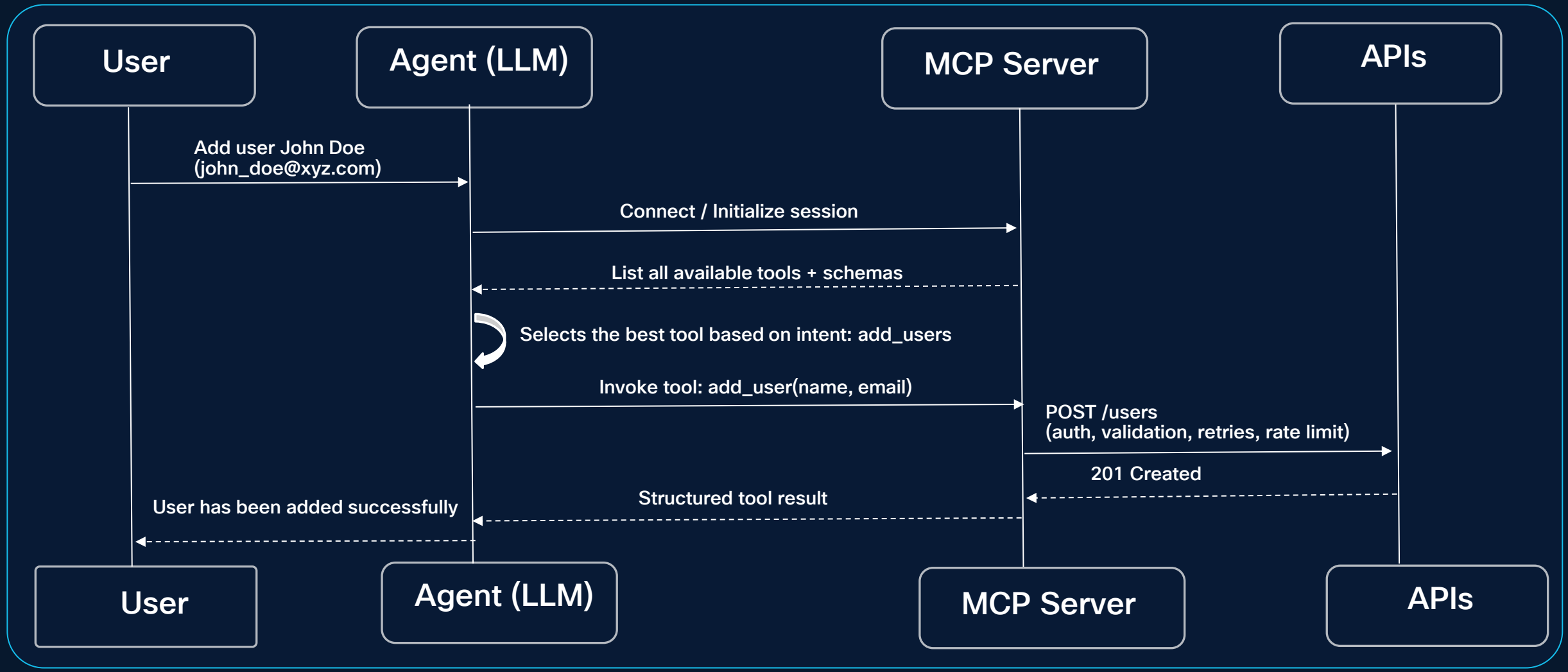
How Agents Discover and Invoke Tools



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How MCP solves API limitations for Agents

Scenario – Get all users from an organization

No Contract vs Contract

Without MCP

Prompt

```
You can call the Users API to get users for an org.
Endpoint: GET /v1/orgs/{orgId}/users
Query params: status
Use Bearer token.
```

Code

```
requests.get(
    f"/v1/orgs/{orgId}/users",
    params={"status": "active"},
    headers={"Authorization": token}
)
```

With MCP

```
"tools": [
    {
        "name": "get_users_by_org_id",
        "description": "Retrieve all users belonging to a specific organization",
        "inputSchema": {
            "type": "object",
            "properties": {
                "orgId": {
                    "type": "string",
                    "description": "Unique identifier of the organization"
                },
                "status": {
                    "type": "string",
                    "enum": [
                        "active",
                        "inactive",
                        "all"
                    ],
                    "description": "Optional filter for user status"
                }
            },
            "required": [
                "orgId"
            ]
        }
    }
]
```

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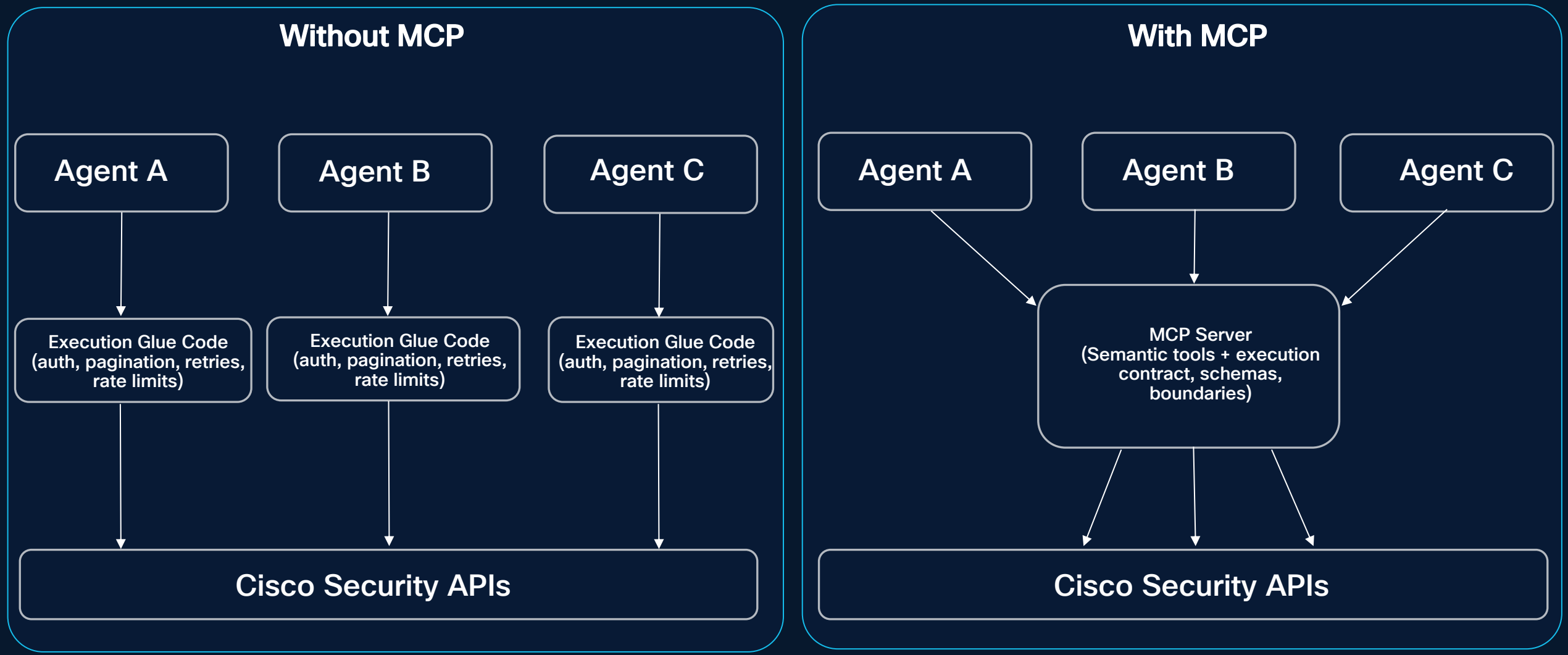
LLM’s reason, MCP executes



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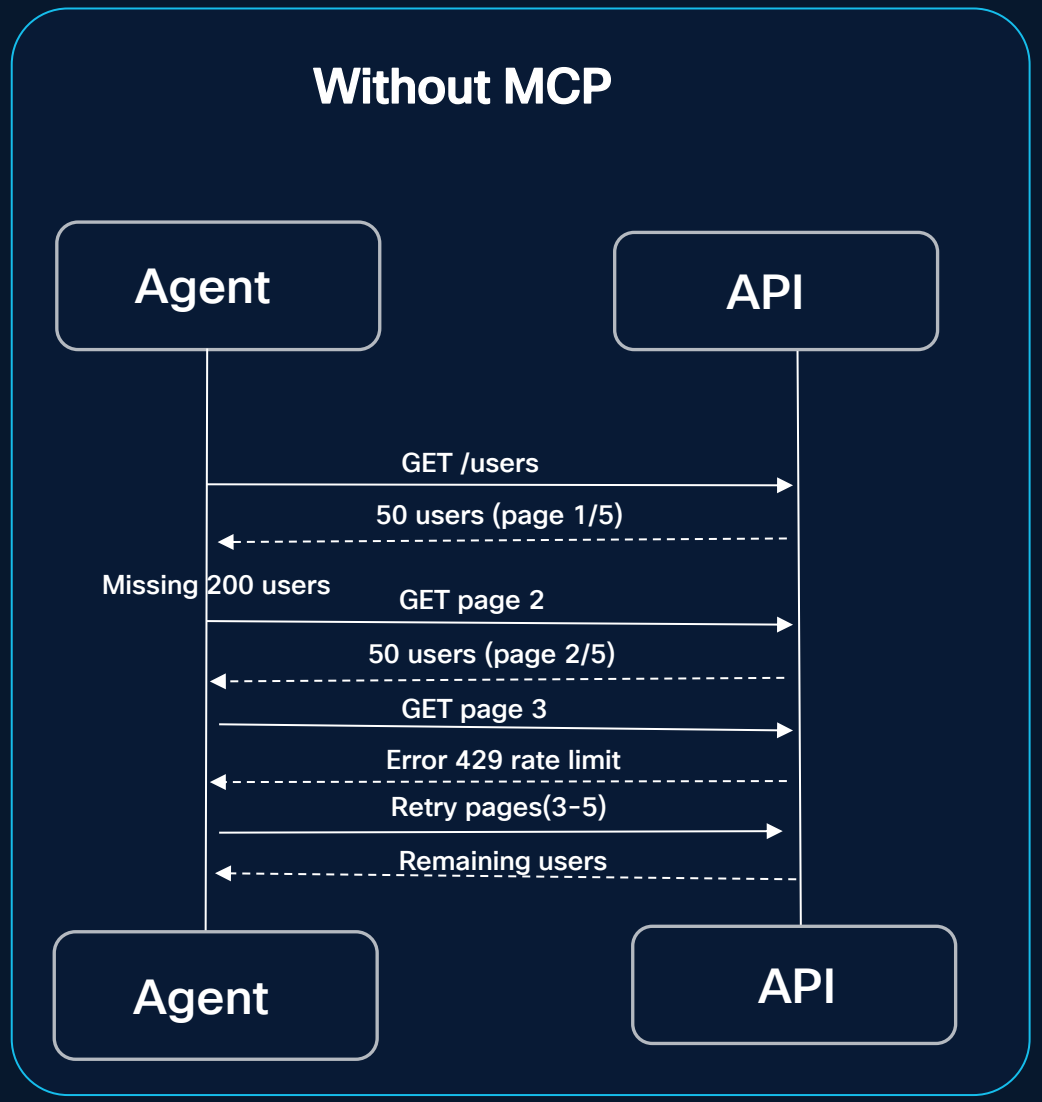
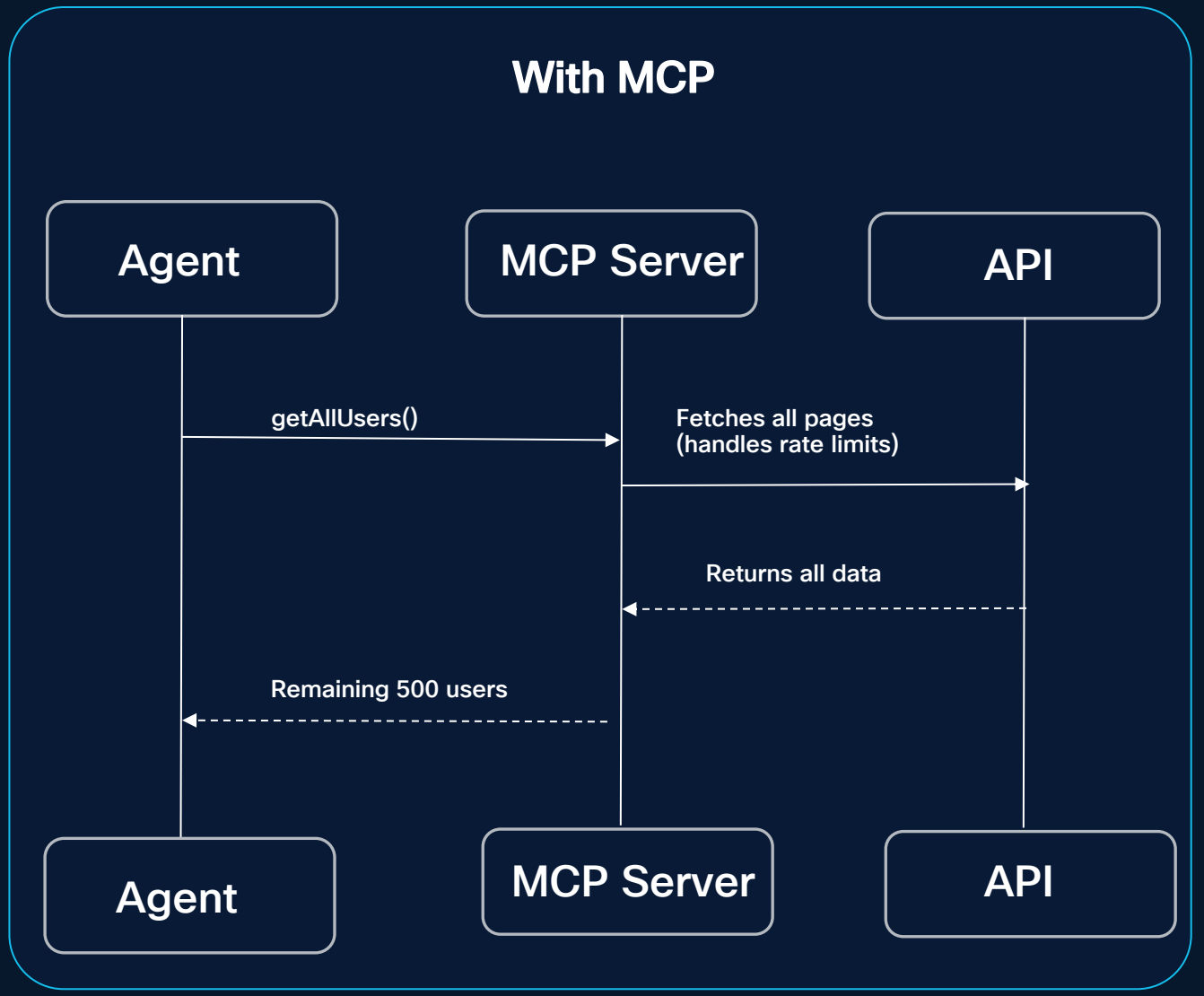
API complexity absorption





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MCP as API Interpreter for LLMs

1. **Absorbs API complexity**
2. **Provides LLM-Native Interfaces**
3. **Structured Error Handling**

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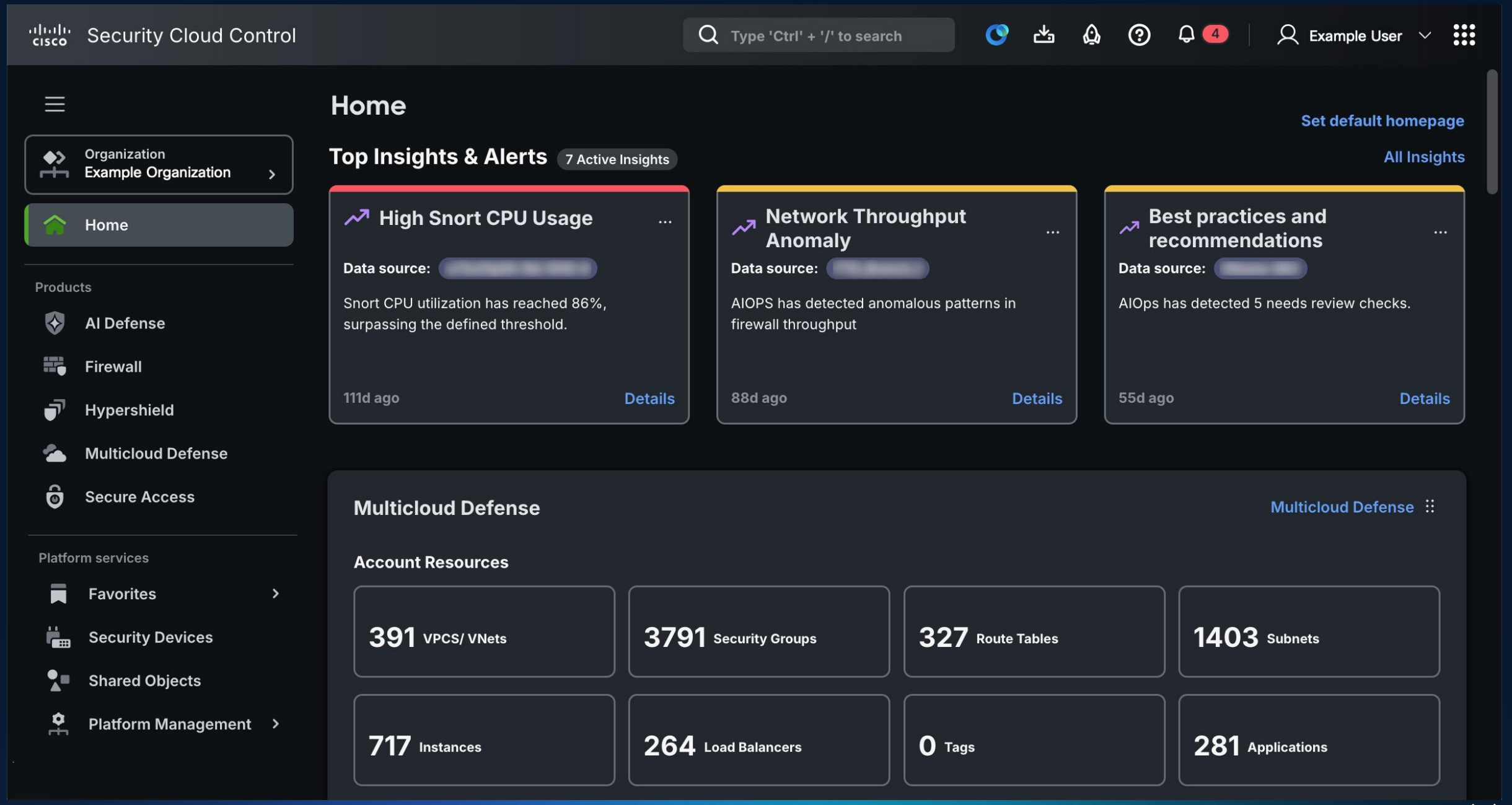
Security Cloud Control



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Security Cloud Control



Product Provisioning



Security Cloud Sign-On



IAM & RBAC



Unified Dashboard & Integrated Product Dashboard



Security Developer Experience



Unified UX



Unified AI Assistant



MSP & FedRAMP Support

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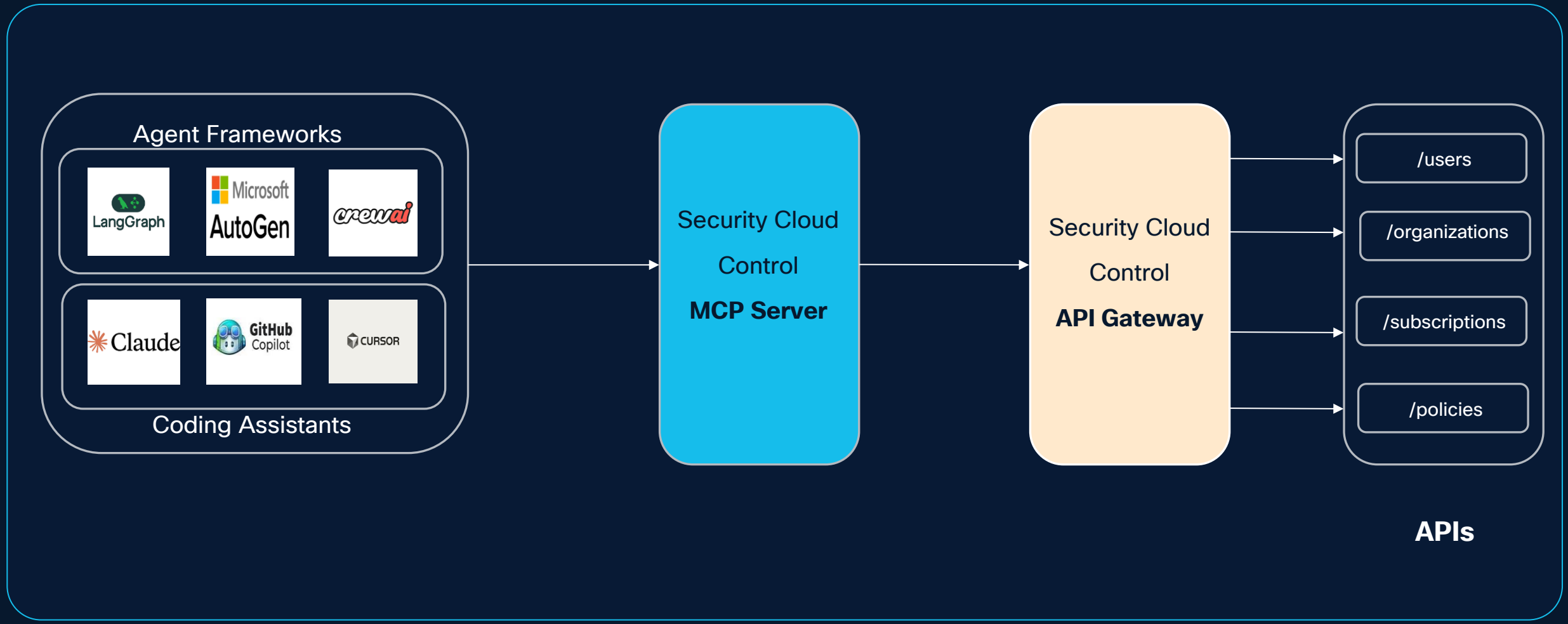
Security Cloud Control MCP Architecture



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Agentic Experience in Action

(LIVE DEMO)

Challenges & Mitigation

Challenges	Mitigation
Tool Explosion & Context Bloat	High Level semantic tools
Prompt Injection & Tool Poisoning	Implement input validation with semantic filtering
Confused Deputy Problem	Implement proper authentication and authorization checks

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Key Takeaways

1. The Paradigm Shift

   From Imperative "How" to Declarative "What"

2. MCP as the Universal Translator

   Standardized Discovery, Invocation, and Context Flow

3. Security cannot be an afterthought

   Design for Least Privilege and Containment from Day One

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