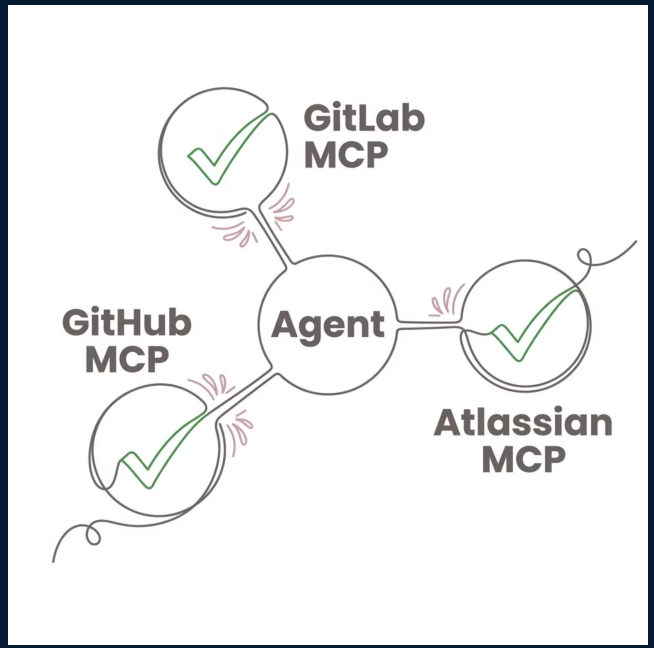
MCP
Dev Summit
Bengaluru

From Alert to Revert

One MCP. 500+ tools for production triage and real-world DevOps

Presented by Avinash Lodhi · Architected by Steven Neisius
Platform Engineering, Learneo

To debug oncall issue, I connected



Three MCPs. One agent. It worked.

GitHub, GitLab, and Jira integration was frictionless and promising.

✓ **Agent connected. Schemas loaded.**

- Listed issues and pull requests
- Checked repositories without friction
- First queries successful

So naturally, I kept going...

Then I Connected a Dozen.

30K

Tokens burned

Before typing a single character – all from tool schema definitions

12+

MCP servers

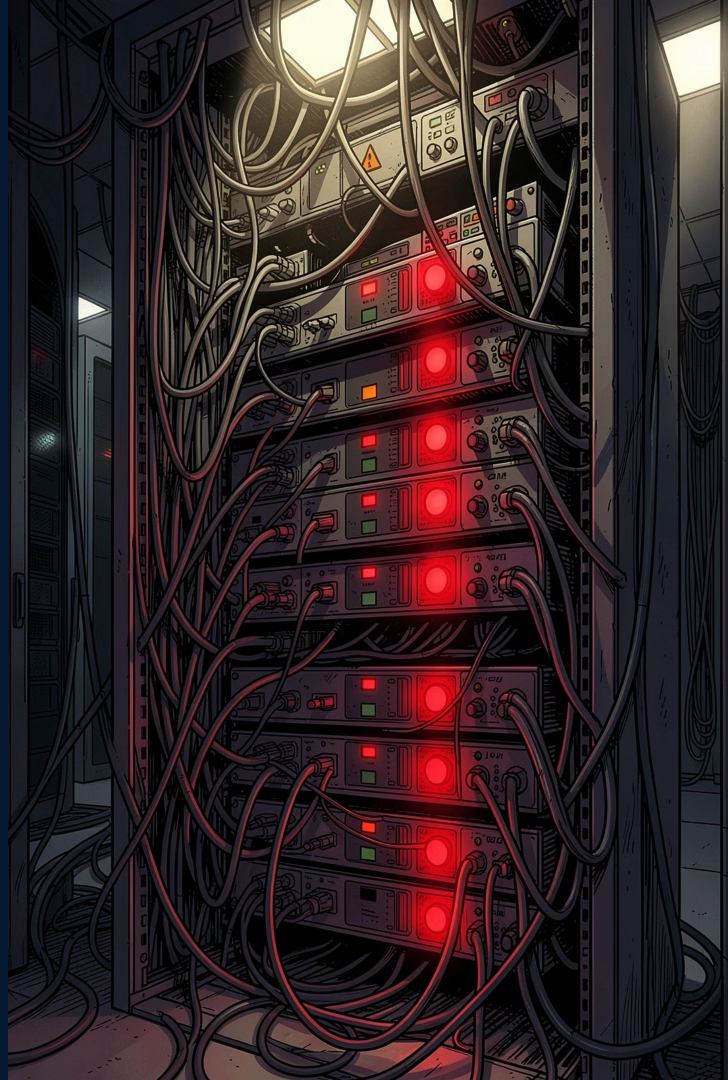
Kubernetes, AWS, Datadog, Confluence, and more

~0

Useful Context Remaining

Context window bloated from schemas alone – wrong tools picked, wrong answers given.

Not a model problem. A **context bloat** problem – the agent was reasoning through a fog of schemas it would never use.



And Every MCP Want Its Own way to connect .

GitHub

`GITHUB_PERSONAL_ACCESS_TOKEN`

GitLab

`GITLAB_PERSONAL_ACCESS_TOKEN`

Atlassian

`JIRA_API_TOKEN + JIRA_EMAIL + JIRA_URL`

AWS

4-variable credential chain

Kubernetes

`kubeconfig mount`

groundcover

OAuth

⚠ **Credential sprawl**, increases with every new addition, hard to manage .

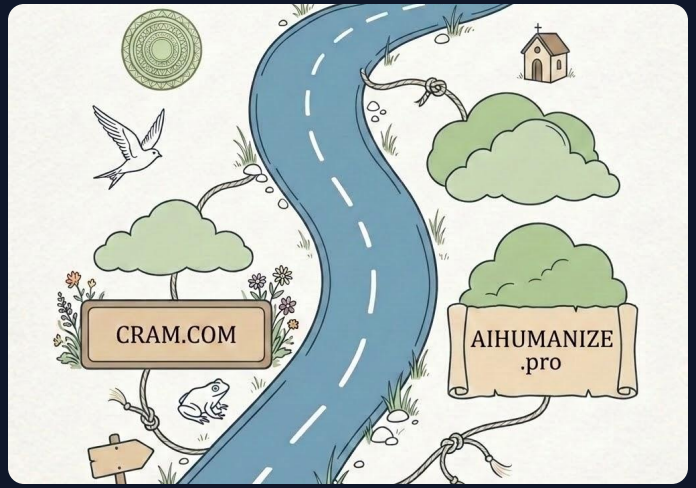
🤖: Where should I look?

Learneo: 7 product lines. Each with its own stack.

Product	Code Host	Cloud	Monitoring
Course Hero	GitLab (self-hosted)	AWS GCP	Groundcover Datadog
QuillBot	GitLab (cloud)	GCP	Datadog
Scribbr	GitHub	AWS	Cloudwatch, Datadog
LitCharts	GitHub	AWS	Cloudwatch, Datadog
StudentBrands	Bitbucket	AWS	Groundcover
LanguageTool	GitHub	AWS	Cloudwatch

3 code hosts. 2 cloud providers. 20+ cloud accounts. 7 monitoring configs. When an engineer asks "check the latest deployment" – which codebase? Which cluster? Which dashboard? The agent has no idea, and your prompt can't explain all of this every time.

A Moving Target: Evolving Enterprise Context



Learneo's product lines are not static; they're constantly evolving in the AI era.

New Products = New Context

Additions like Cram.com or AIHumanize.pro bring unique stacks, auth, and monitoring requirements.

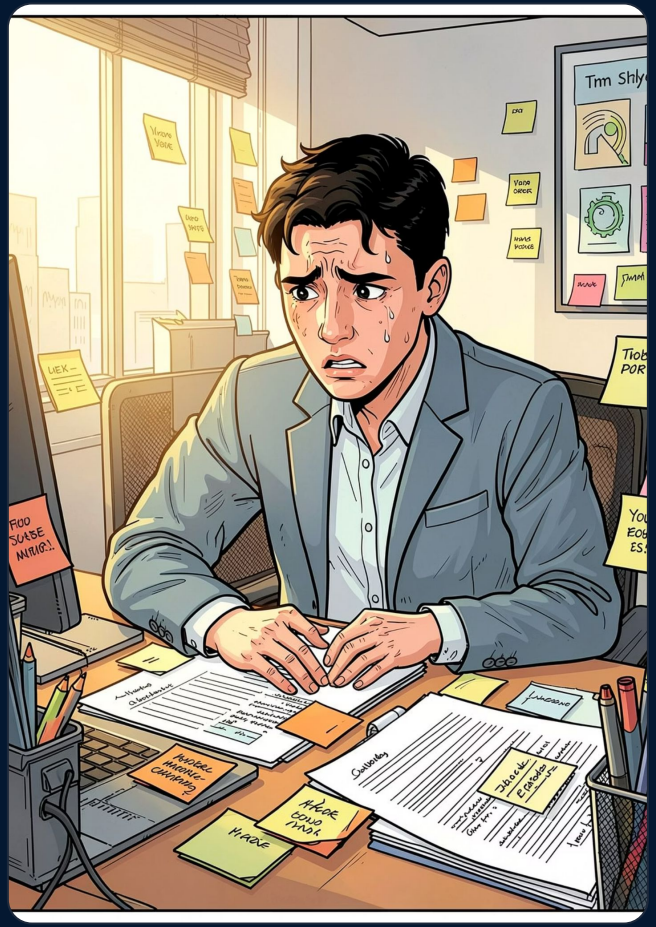
Context Bloat Returns

Agents struggle without specific enterprise context, even with large windows or selective MCPs.

The Agent's Blind Spots

Lack of context leads to incorrect assumptions, constant clarification, and hallucinations.

The agent needs an **up-to-date map** of the enterprise to act intelligently, not just more raw data.



Too many install commands for team onboarding

01 `npm install -g @modelcontextprotocol/server-github`

02 Download binary. Verify SHA256.

03 `pip install` **via** `uvx`

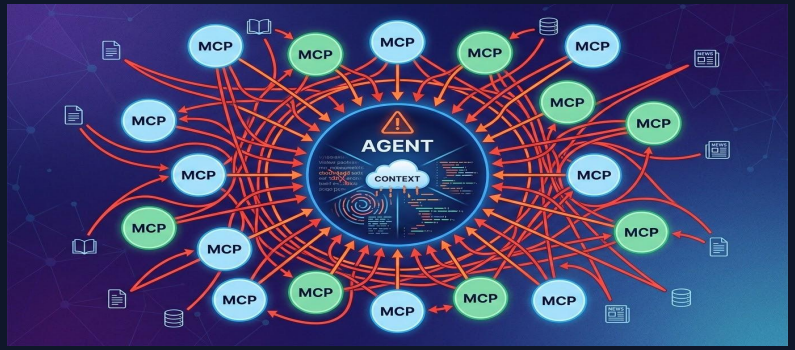
04 Set 14 environment variables across 6 different auth shapes

Average time to working setup: **3–4 hours.** Some engineers never finish. Every new upstream made the list longer.

Solution

One Aggregator. All the Tools. One Connection.

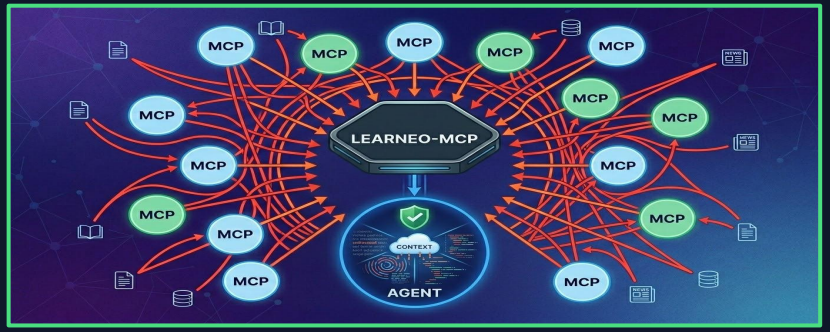
BEFORE: CHAOTIC DIRECT CONNECTIONS



~30,000 tokens
Context burned at connect time

12+ connections

AFTER: CLEAN AGGREGATION



~1,500 tokens
20× reduction in overhead

1 connection
Single unified mcp server to the agent

What the Agent Actually Sees

Not 500 schemas. **Six meta-tools.** 1,500 tokens. Every upstream tool still reachable at runtime.

`learneo_search_tools`

BM25 search over the full tool catalog

`learneo_describe_tools`

Pull full schema for any tool, on demand

`learneo_execute_tool`

Call any upstream tool through the aggregator

`learneo_get_company_context`

The full enterprise tech map: all 9 product lines, their code hosts, and cloud providers.

`learneo_setup_guide`

Self-service credential setup for engineers

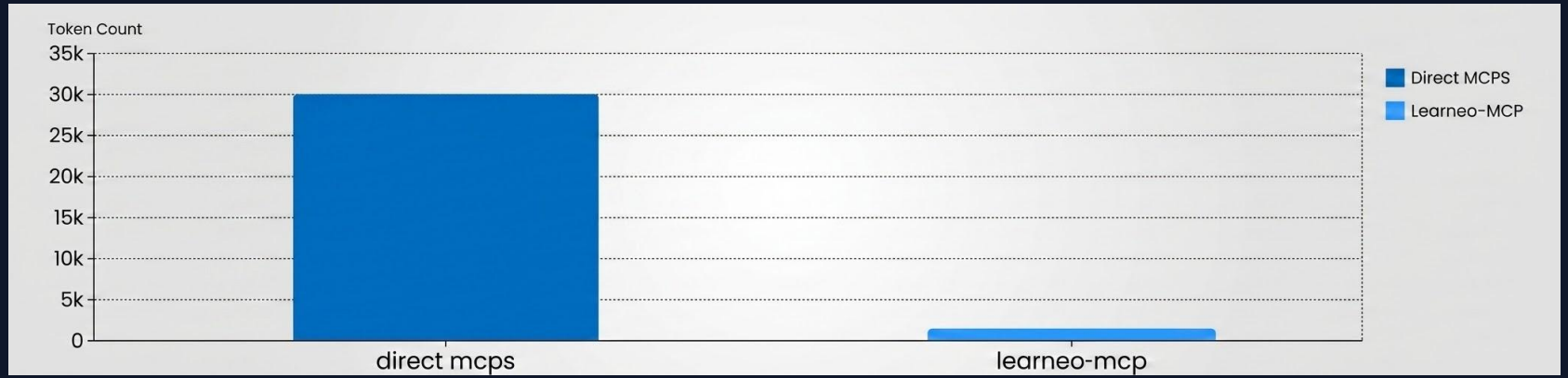
`learneo_debug_status`

See what's connected and what's healthy

Constant tokens. Infinite tools.

~1,500 tokens at connect – always.

Regardless of how many upstreams are configured.



How the agent accesses 500+ tools:

```
learneo_search_tools("error rate logs groundcover")
learneo_describe_tools(["groundcover_query_logs"])
learneo_execute_tool("groundcover_query_logs", {...})
```

Search is BM25:

- name (3×)
- tags (2×)
- description (capped at 150 tokens)
- upstream prefix boost

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Demo

Watch the agent go from Slack alert to reverted commit.

General prompt, zero tool hints, no infrastructure briefing.

Let's see learneo-mcp in action

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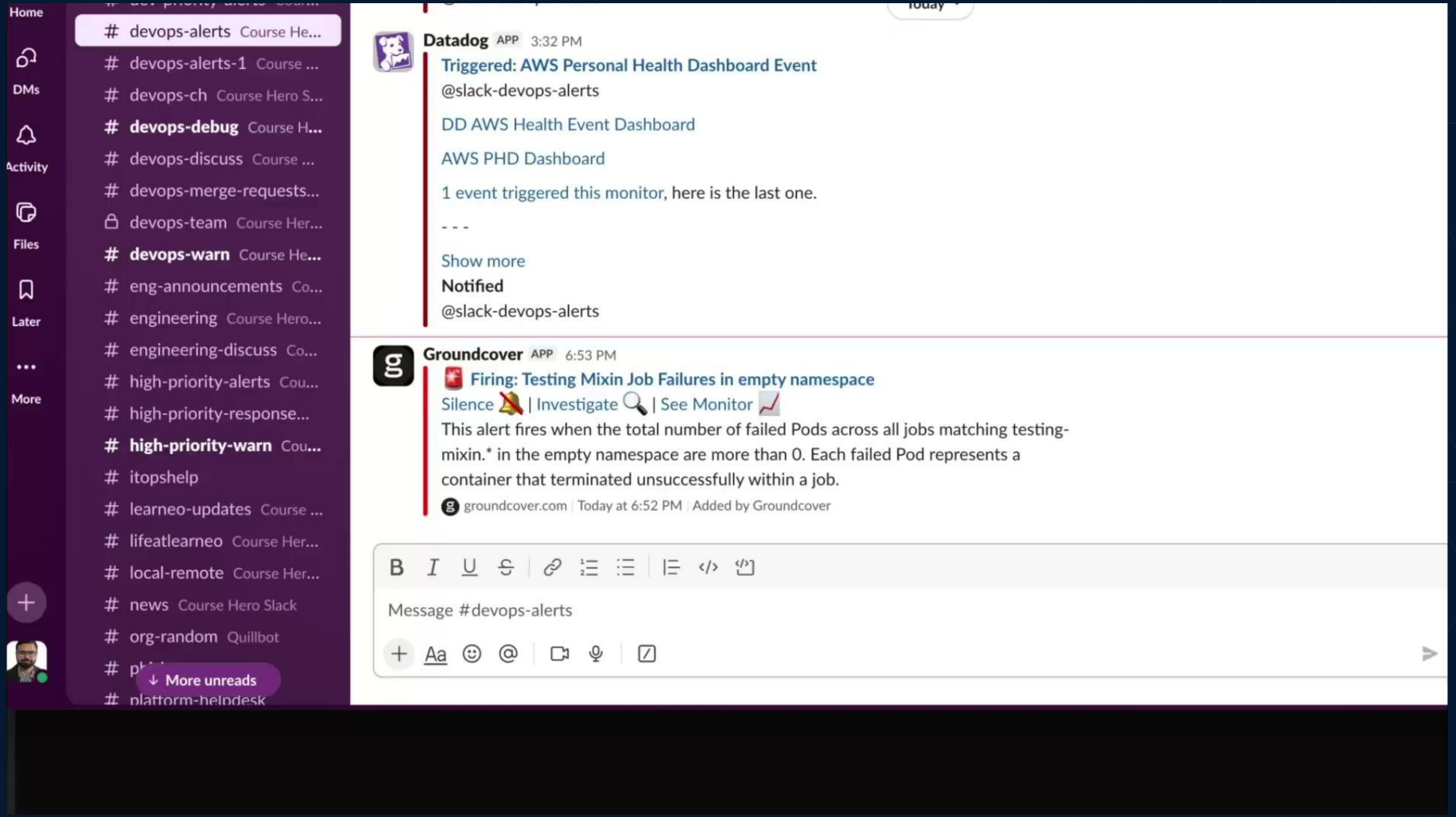

Home
DMs
Activity
Files
Later
More
devops-alerts Course He...
devops-alerts-1 Course ...
devops-ch Course Hero S...
devops-debug Course H...
devops-discuss Course ...
devops-merge-requests...
devops-team Course Her...
devops-warn Course He...
eng-announcements Co...
engineering Course Hero...
engineering-discuss Co...
high-priority-alerts Cou...
high-priority-response...
high-priority-warn Cou...
itopshelp
learneo-updates Course ...
lifeatlearneo Course Her...
local-remote Course Her...
news Course Hero Slack
org-random Quillbot
More unreads
platform-helpdesk
Today
Datadog APP 3:32 PM
Triggered: AWS Personal Health Dashboard Event
@slack-devops-alerts
DD AWS Health Event Dashboard
AWS PHD Dashboard
1 event triggered this monitor, here is the last one.
- - -
Show more
Notified
@slack-devops-alerts
Groundcover APP 6:53 PM
Firing: Testing Mixin Job Failures in empty namespace
Silence | Investigate | See Monitor
This alert fires when the total number of failed Pods across all jobs matching testing-mixin.* in the empty namespace are more than 0. Each failed Pod represents a container that terminated unsuccessfully within a job.
groundcover.com | Today at 6:52 PM | Added by Groundcover
Message #devops-alerts

The Agent Did All of This.

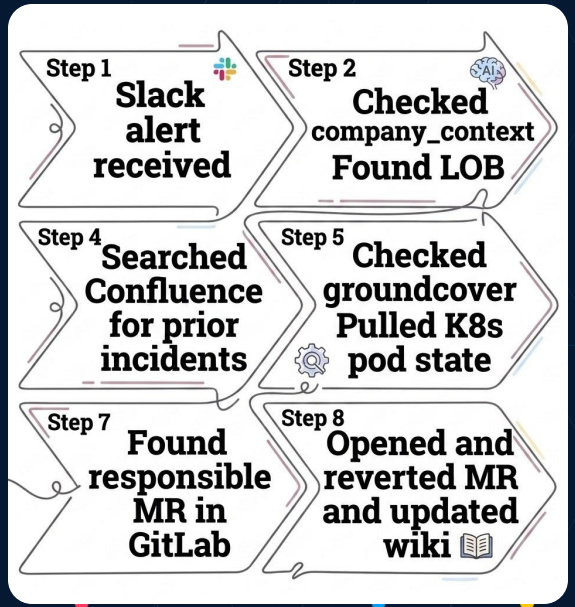
One conversation. One short prompt.

The agent navigated complex infrastructure seamlessly:

- Identified correct monitoring tools and clusters without explicit instructions
- Analyzed prior incidents to inform current resolution strategies
- Found the root cause and reverted it

Without learneo-mcp:

custom scripts per LOB, or 14 MCPs burning your context budget, or a 500-word prompt explaining your stack on every tun



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The agent knew.

COMPANY-OVERVIEW

Course Hero GitLab (self-hosted), AWS, Groundcover, Datadog
QuillBot GitLab.com GCP Datadog
Scribbr GitHub AWS Cloudwatch, Datadog
LanguageTool GitHub AWS Cloudwatch

How it worked in the demo:

- Agent called `learneo_get_company_context`
- ID from metadata → deduced **CourseHero LOB**
- Independently knew: Groundcover, gitlab, the right EKS cluster

I gave a one-line prompt. It didn't ask clarifying question.

MCP instructions field:
LOB → code host, monitoring, cluster, AWS account

Setup in minutes, not hours.

Central deployment

Read-only tools → credentials already there.

Connect once. Gated by Okta OAuth. Use immediately. Nothing to install.

Write tools / personal tokens

`learneo_setup_guide`

- Agent asks which upstreams you want
- Tells you exactly which tokens to get
- Copy-paste them into one .env file
- Agent handles the rest

Pick and choose which upstreams to enable. No format chaos. No 14-step checklist.

Before: ~~3–4 hours · 14 env vars · format chaos~~ **After: ~10-20 minutes · one .env file**

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Learning from past incidents

A Confluence space owned by the agents

Central repository for all operational knowledge, accessible and modifiable by the AI agent.

Confluence wiki

Org structure, data models, and "where-to-look" navigation pages.

LLM Wiki

Catalog of past investigations and technical post-mortems for reference.

Skills

Reusable playbooks for complex tasks (e.g., automated EKS upgrades).

Agent reads during triage · Writes what it learns · Incident response gets faster every time

Architected by Steven Neisius

Architect and creator of Learneo MCP.

- Designed the meta-tool pattern.
- Coded the aggregator end to end.
- Set the security model for company-wide deployment.

Everything you saw today rests on his architecture.

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Learneo MCP

Special thanks to:

Adam, Eilidh, Manshubh, Rich, Jing & the whole team.

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