MCP Dev Summit Nairobi

My Deployment Succeeded and My Controller Said It Failed

Designing for UNKNOWN in MCP

HEALTHY FAILED UNKNOWN

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Developer Relations Lead, PipeOps

HELLO,

I'm Precious Ngwube

DAY JOB

Developer Relations Lead at PipeOps, a cloud deployment platform.

COMMUNITY

Agentic AI Foundation Ambassador, 2026

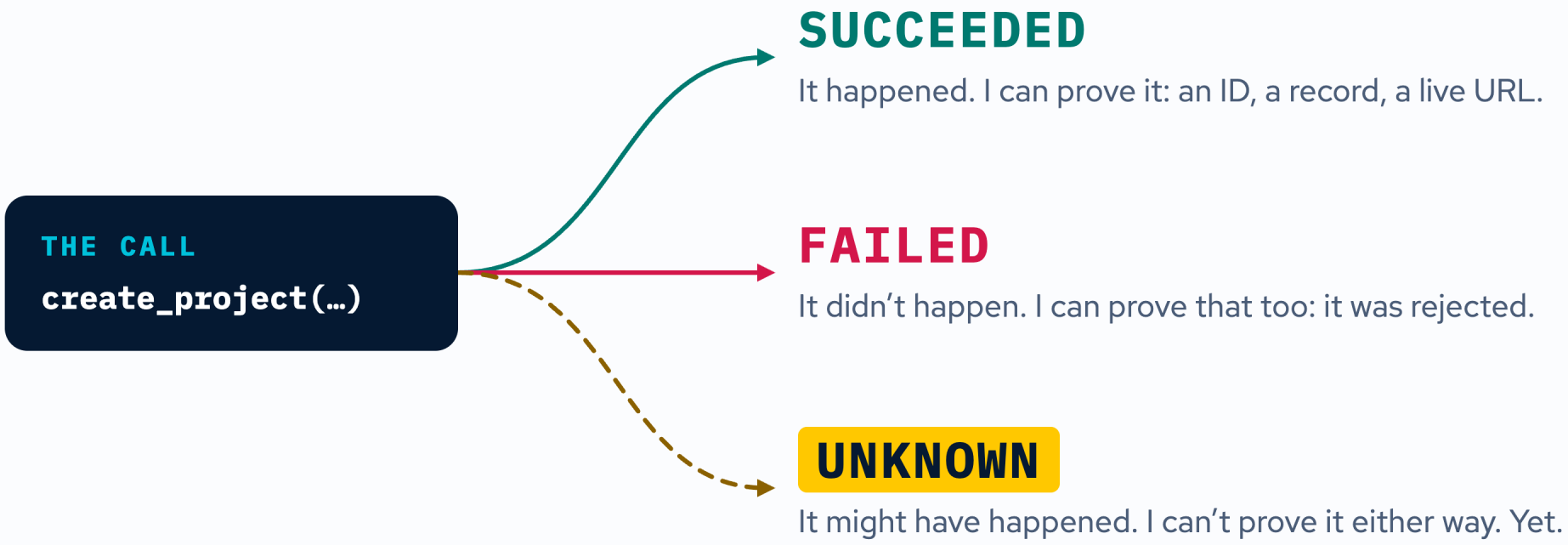
ALSO

I run Prompt Africa. Where I help developers in Africa understand how to get involved in the agentic AI era.



THE QUESTION

Your agent calls a tool that changes something. Did it work?



Most tool code only has the first two.

WHY IT MATTERS

Two-state code turns doubt into a confident wrong answer

YOU REPORT

FAILED

→ THE AGENT tries create_project again →

cbt-app
D
cbt-app
Deploying
×2

Two projects, two deploys, two bills

YOU REPORT

SUCCEEDED

→ THE AGENT moves on to the next task →

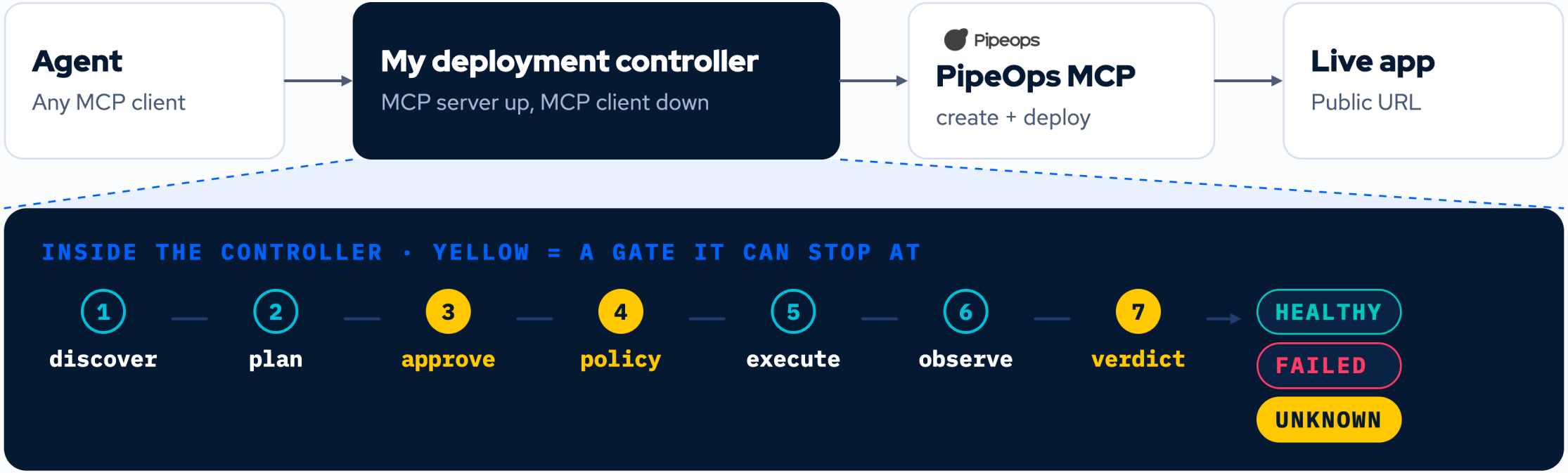
502
Bad gateway

Users find the broken app first

In MCP, the caller is a model. It acts on whatever you tell it, confidently.

WHAT I BUILT

An MCP deployment controller that sits between an agent and a real platform



Only two tools can write, and only after a human approves the exact plan hash.

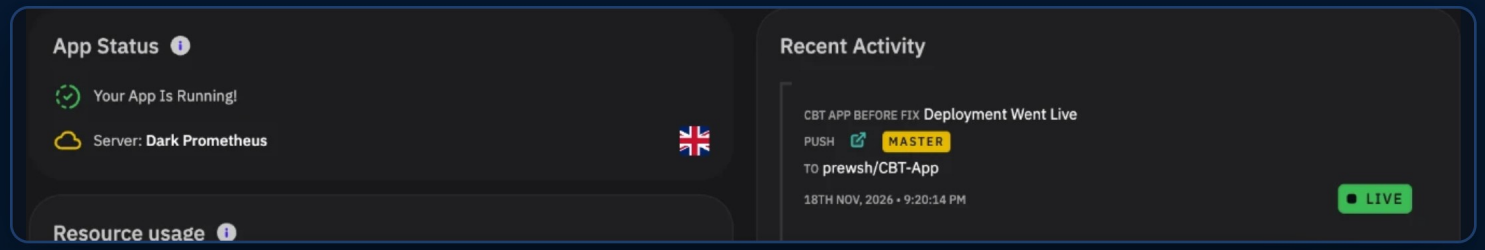
RUN A1 · BEFORE THE FIX

The app went live. One second later, my controller said FAILED.

PipeOps

9:20:14 PM

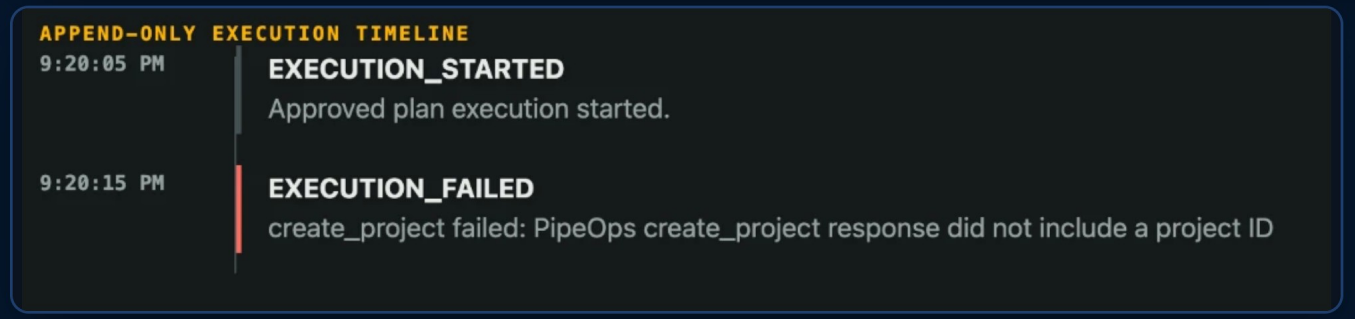
"Deployment Went Live"



My controller

9:20:15 PM

EXECUTION_FAILED



Users had the app. The agent was told it never happened.

THE BUG, AND THE FIX

PipeOps accepted the request. My code called that a failure.

execution.go — BEFORE · 546d231

```
117  id, err := s.pipeops.CreateProject(ctx, in)
118  if err != nil {
119    return s.fail(ctx, exec,
         "create_project failed: "+err.Error())
120  }
```

execution.go — AFTER · 8f8319b

```
118  if err != nil {
+11    if errors.Is(err, ErrProjectIDMissing) {
  9
+12      return s.unknown(ctx, exec,
  0
           "accepted, no project ID; will not retry")
+12    }
  1
122    return s.fail(ctx, exec, ...)
123  }
```

THE TOOL

create_project means “create and queue a deploy”

THE GAP

The reply had no project ID, so I couldn’t look it up

THE RULE

Can’t check it? Don’t retry it. Say UNKNOWN.

RUN A2 · AFTER THE FIX · SAME PLAN

This time my controller said UNKNOWN, and it was right.

My controller

9:52:34 PM

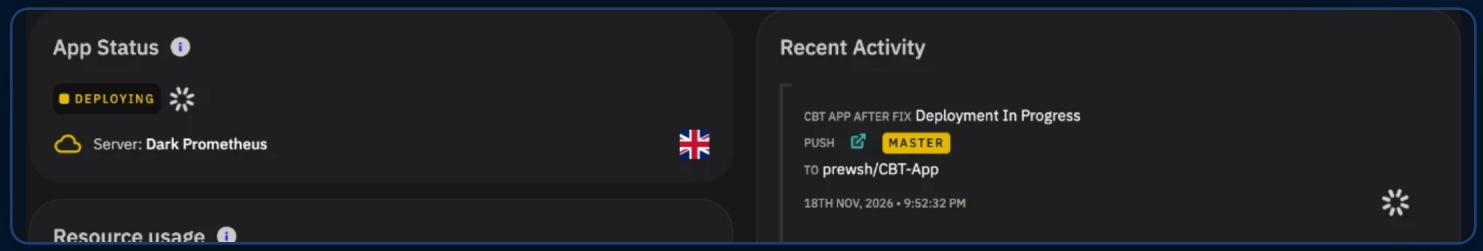
EXECUTION_UNKNOWN



PipeOps

same moment

DEPLOYING

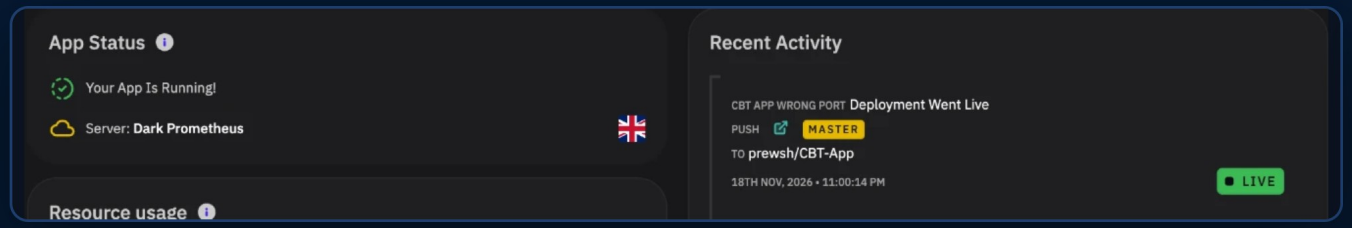


The deploy hadn't finished. Nobody could know the outcome yet, so UNKNOWN was the only true answer.

RUN B · WRONG PORT (3000 INSTEAD OF 80)

Three systems, three different answers

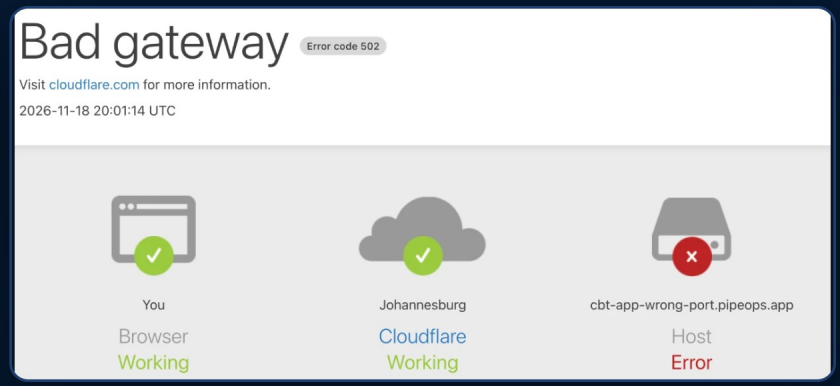
PIPEOPS · 11:00:14 PM · "DEPLOYMENT WENT LIVE"



MY CONTROLLER · 11:00:16 PM · UNKNOWN · NO PROJECT ID



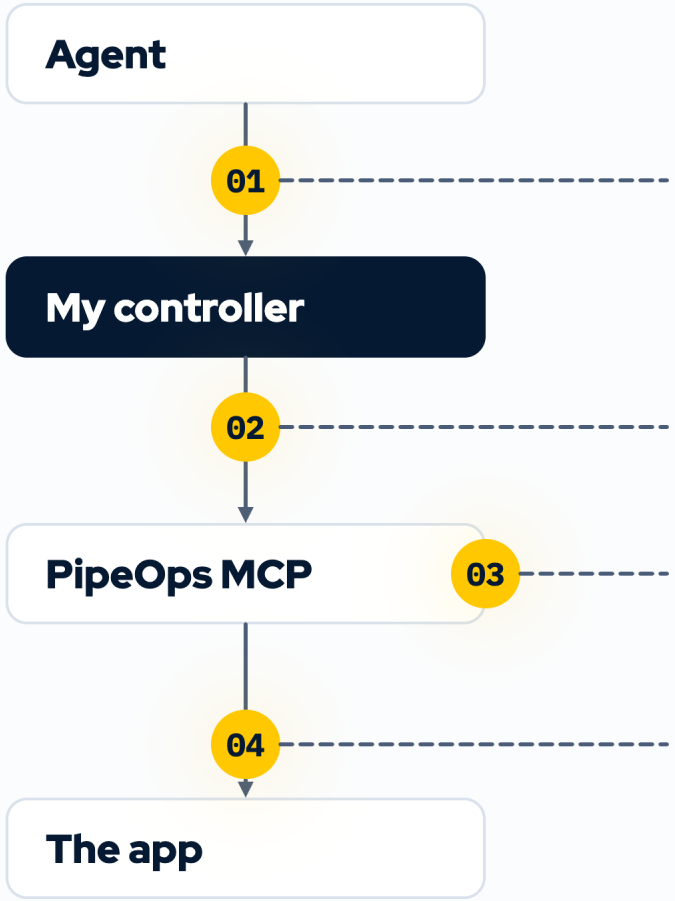
THE URL · 11:01:14 PM · 502



The platform saw a running container. Users saw a 502. Only reality gets the final say.

WHERE UNKNOWN COMES FROM

Four ways a tool call ends without proof



The answer got lost

NOT RUN LIVE YET

A timeout or a dropped stream, on any hop. Nothing came back.

No handle

RUN A1 · RUN A2

The reply says OK but carries no ID you can look up.

Not finished

RUN A2

“Accepted”, “queued”, “deploying”: steps, not outcomes.

Just a claim

RUN B

“Went live” is the platform’s view. Users may see a 502.

WHAT TO TAKE HOME

Four rules for designing for UNKNOWN

01

FOR A LOST ANSWER

Never retry a write you're unsure about

Look it up first. Retry only once you know.

02

FOR NO HANDLE

Every write returns something checkable

An ID or a request key, so the caller can look it up.

03

FOR NOT FINISHED

Give your tools a third answer

SUCCEEDED, FAILED and UNKNOWN, in your types, results and logs.

04

FOR JUST A CLAIM

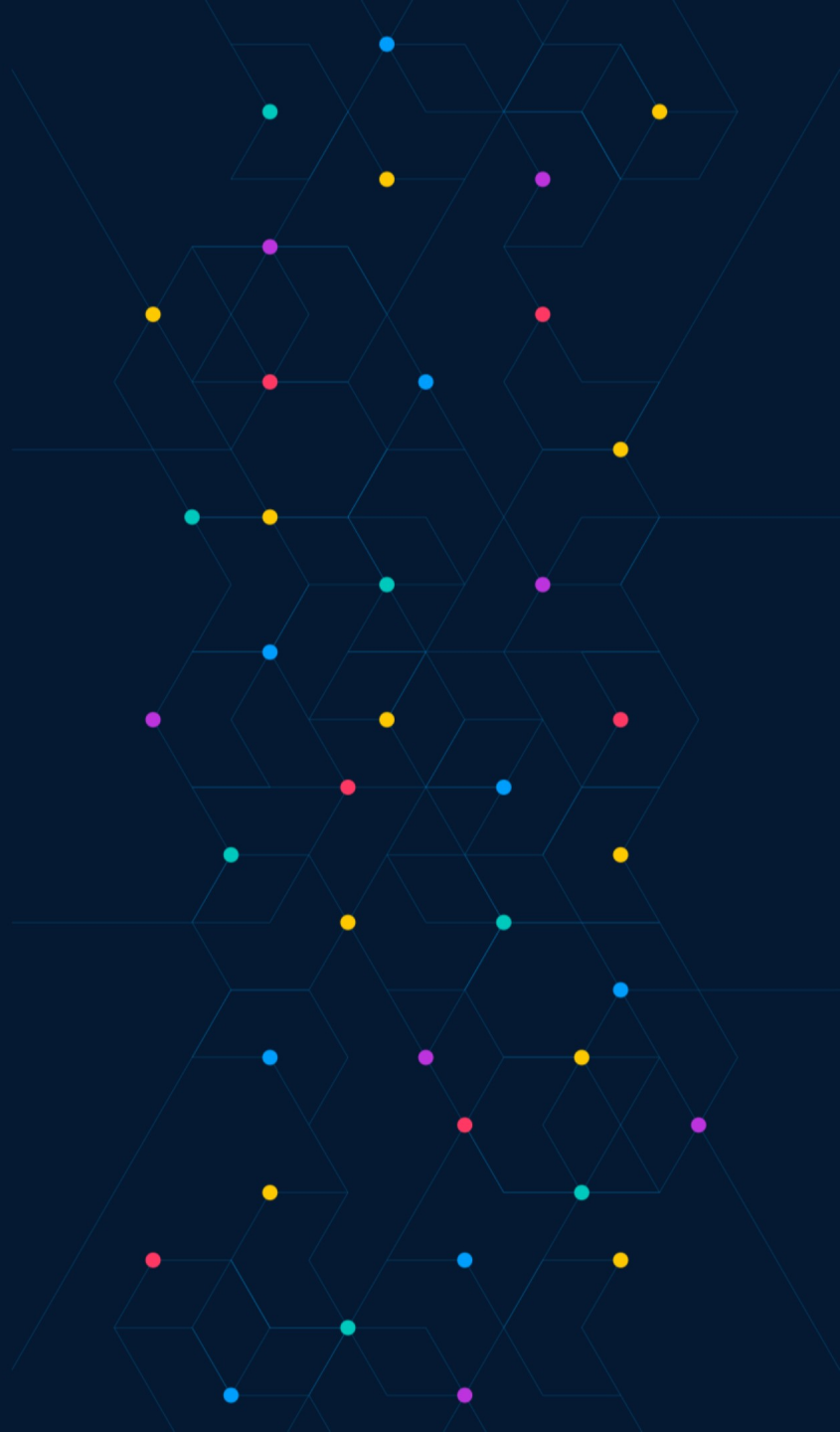
Check reality, not the status

"Went live" is a claim. Open the URL.

IF YOU REMEMBER ONE THING

UNKNOWN is an honest answer.

Give your tools a way to say it, before production says it for you.



RESOURCE BANK

Take it apart yourself

Scan for every link

One page, ready to tap on your phone

ON THE PAGE

The controller (Go)
`github.com/prewsh/MCP-Deployment-Lab`

The full write-up
`promptafrica.substack.com`

PipeOps MCP server
`mcp.pipeops.app/mcp`

MCP specification
`modelcontextprotocol.io`

MCP Inspector
`github.com/modelcontextprotocol/inspector`

These slides (PDF)
`View or download from the same page`

Thank you.



Precious Ngwube

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