

 **OPEN SOURCE SUMMIT**
THE LINUX FOUNDATION
NORTH AMERICA

 **Embedded Linux
Conference**

Automating MCP Server Testing: Engineering Reliability for Agentic Systems

18 May 2026



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Agenda

- Arm Introduction
- Arm MCP Server
- Testing Framework – pytest + TestContainers
- Automate Testing/CI – GitHub Actions
- Demo
- Conclusion

Introduction



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Staff Solution Architect



Arm Everywhere



I O T



M O B I L E



P C



A U T O



C L O U D

← ARM AI COMPUTE PLATFORM →

The Future of AI is Built on Arm

What are MCP Servers, and why are they useful?

LLM GAP 1

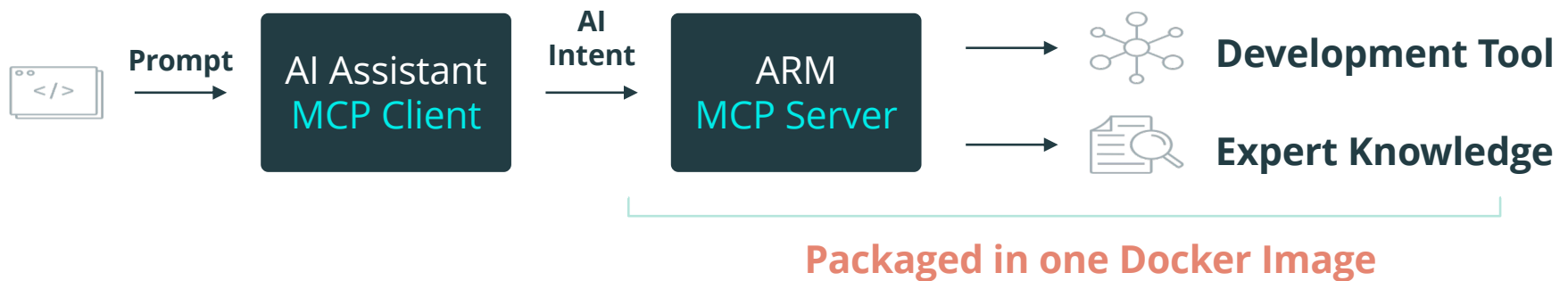
Lacks domain expertise

LLM GAP 2

Lags current docs/best-practice

LLM GAP 3

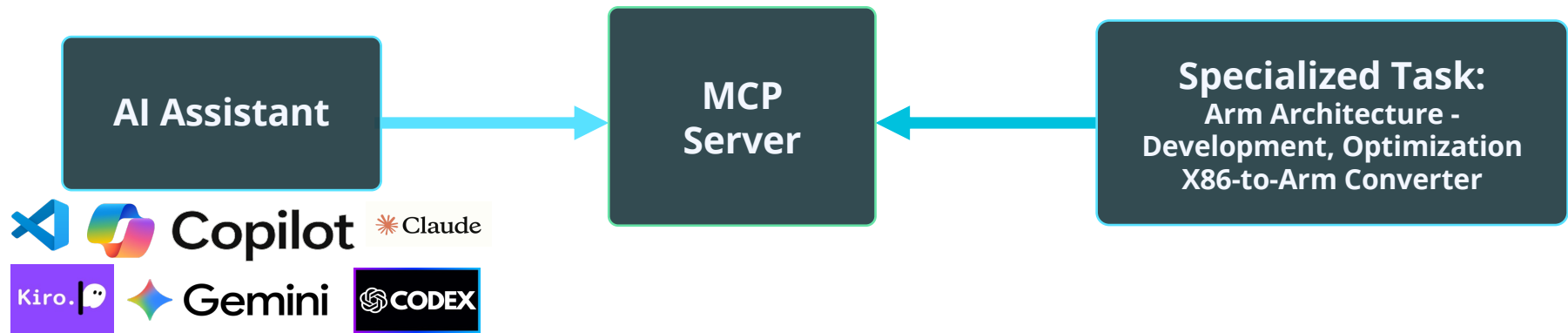
No deterministic tool use



MCP Server – USB-C for AI Applications

Arm MCP Server

<https://github.com/arm/mcp>



**Assist with Arm Architecture Development,
Migration, and optimization**

Arm MCP Server

AI Assistants

Claude Code	VS Code	GitHub Copilot	Antigravity	Kiro	Windsurf	Cursor	Code X	Gemini
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MCP Registries

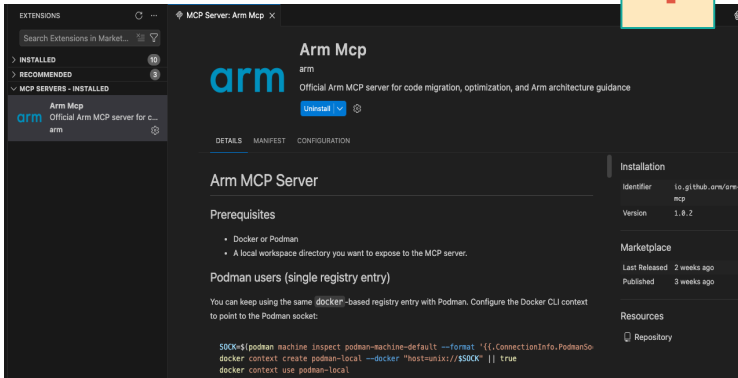
GitHub MCP Registry	Docker MCP Toolkit	GitHub Custom Agents	Kiro Powers
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Arm MCP Server

Tools Container Migration: Codebase Assessment: Optimization:	Knowledge Developer tutorials: Package Compatibility:	Prompts Your goal is to migrate a codebase from x86 to Arm. Check for x86-specific dependencies (build flags, intrinsics, libraries, etc.) and change them to Arm architecture equivalents...
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Walkthrough

1

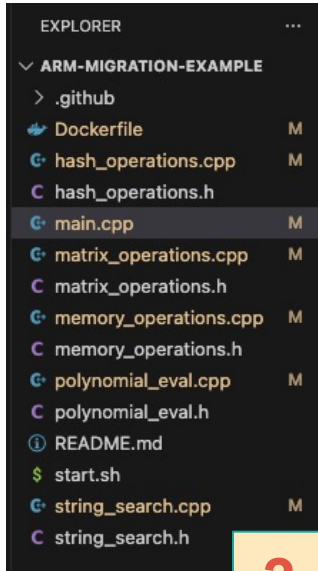


2

```
2026-05-17 14:14:08.760 [warning] [server stderr]
2026-05-17 14:14:08.760 [warning] [server stderr]
2026-05-17 14:14:08.760 [warning] [server stderr] [05/17/26 21:14:08]
INFO Starting MCP server 'arm-mcp' with server.py:1974
2026-05-17 14:14:08.760 [warning] [server
stderr] transport 'stdio'
2026-05-17 14:14:08.768 [info] Discovered 6 tools
```

Your goal is to migrate a codebase from x86 to Arm.
Check for x86-specific dependencies (build flags, intrinsics, libraries, etc.) and change them to Arm architecture equivalents...

4



3



5

<https://github.com/arm/arm-migration-example>

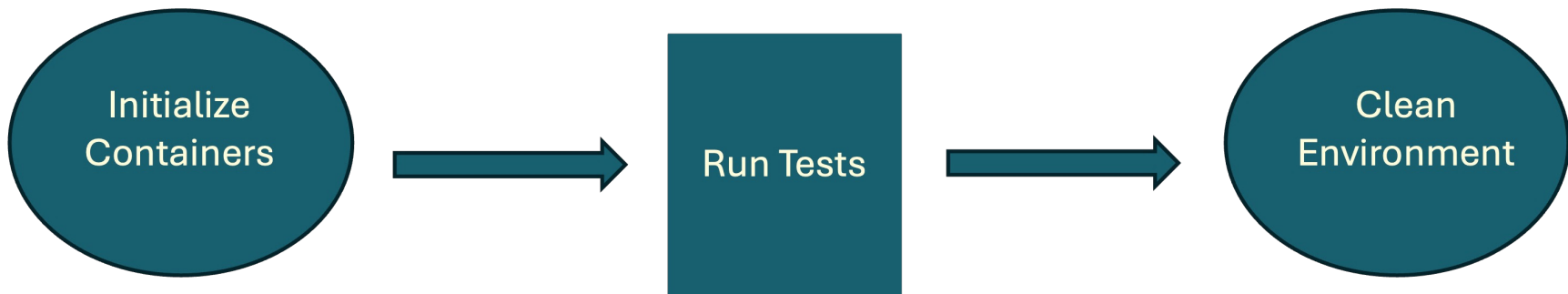
Why MCP Server Testing is Hard ?

- Nondeterministic Agent Behavior
- Unscalable Manual Validation as Tools & Knowledge Grow
- Unit Test Failures at Agent Tool interactions



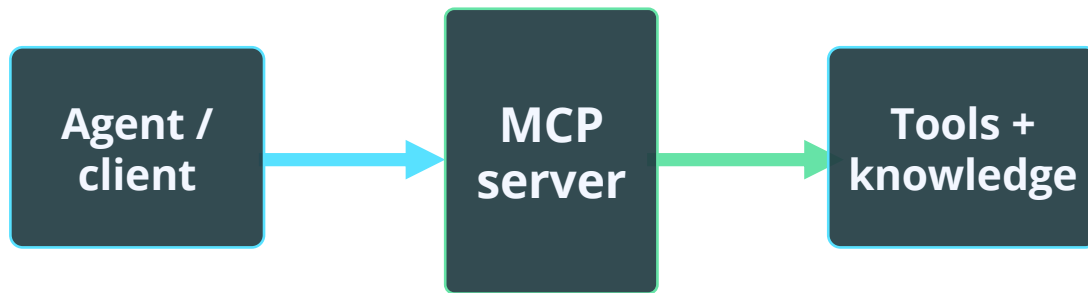
Goal - Make Server Contract Repeatable & Testable

Testing Framework – PyTest + TestContainers

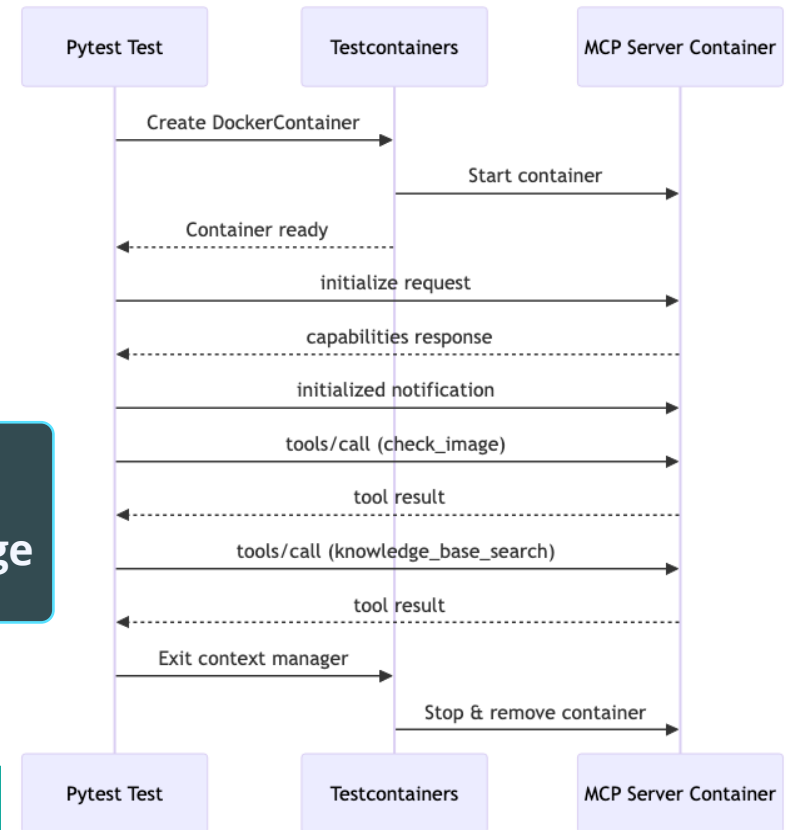


Realistic Testing, Isolation, Reproducibility, No External Dependency

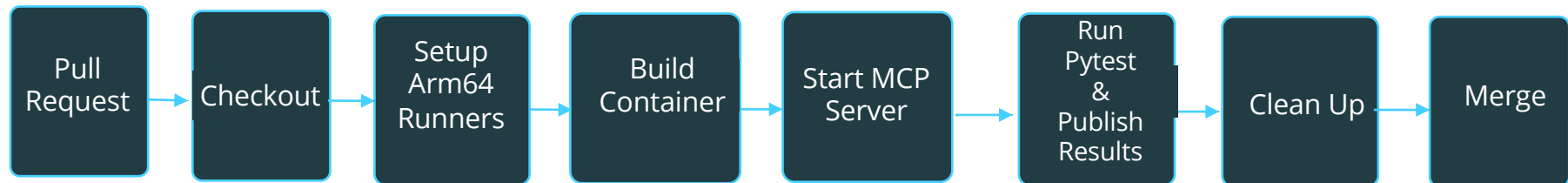
Testing Framework – MCP Communication



Test the Contract, Not the Model



Automate Testing/CI - GitHub Actions



CI makes Reliability Enforceable

Demo

Conclusion

Because “it worked on my machine” is not a deployment strategy !!!

Not a Demo, Not a Glue Code, Service that deserves Real Tests

Thank You

Q&A

Arm MCP Server

<https://github.com/arm/mcp>



Arm Learning Path

<https://learn.arm.com/learning-paths/cross-platform/automate-mcp-with-testcontainers/>



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arm



Thank You





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