



MCP
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MCP Resources Are Already a Knowledge Graph

You Are Just Not Reading the Headers

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The Problem: Flat Retrieval in a Graph World

RAG / Tool-only Agent

- Top-k query retrieval
- No cross-doc link following
- No stale version detection
- All chunks treated equally
- Misses multi-hop links



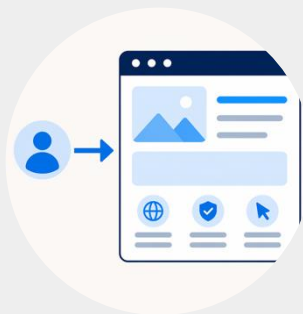
What If the Data Is Already a Graph?

- Resources already have URIs
- Typed links are included
- Version metadata is present
- Dependencies are declared
- Just read the headers



Key Analogy

MCP Resources



Going straight to a site
via URL

VS

RAG



Searching Google and
getting a list of links

What MCP Resources Already Give You



mcp:// URI

Stable, addressable identity



Typed Links

depends_on, implements,
superseded_by



Version

Integer version + last_modified
timestamp



Checksum

Content integrity via SHA-256



Metadata

compliance_scope, author,
space



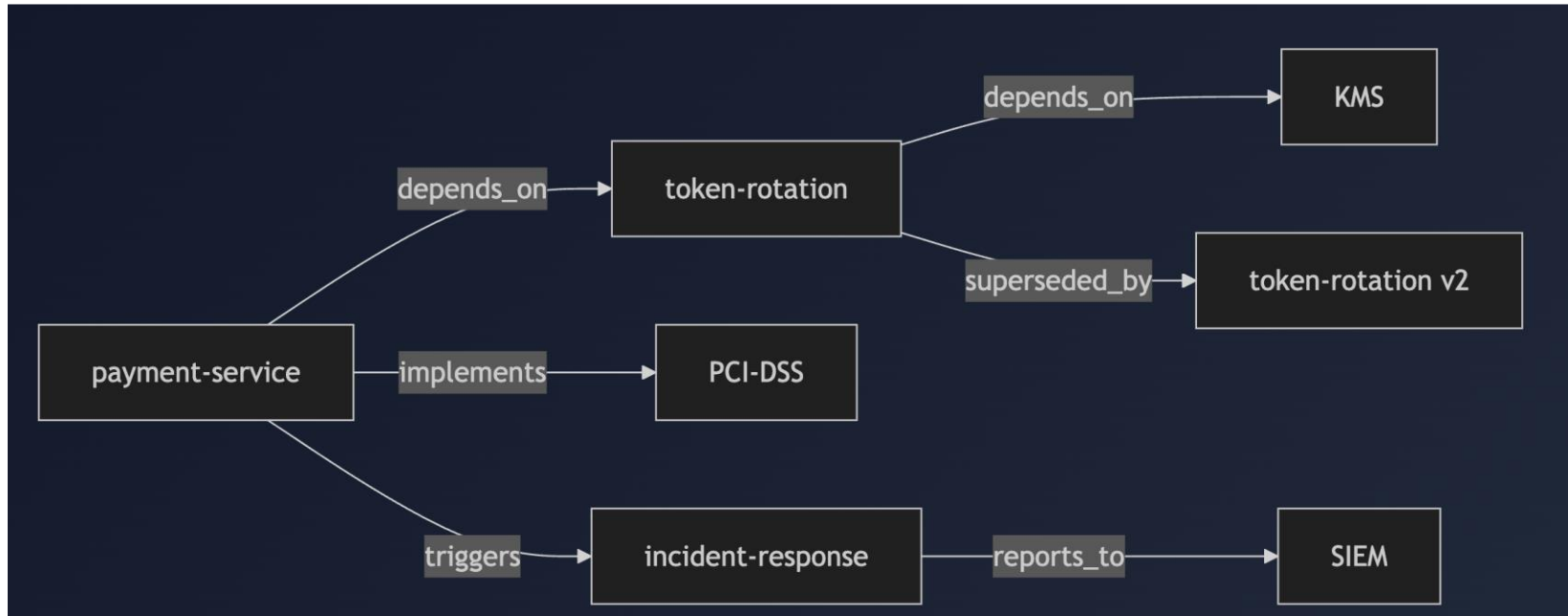
Traversability

Follow links → build a
subgraph



The Hidden Knowledge Graph

Every MCP Resource is a node. Every typed link is an edge.



Demo

RAG Agent vs Resource-Graph Agent

3 Rounds • 11 MCP Resources • Payment-Service Domain



Round 1: Simple Single-Hop Query

"How are tokens rotated in the payment service?"

RAG Agent

- ✓ Finds token-rotation doc
- ✓ Returns correct answer
- ✗ No link traversal
- ✗ No version check

Resource-Graph Agent

- ✓ Finds token-rotation doc
- ✓ Returns correct answer
- ✓ Follows links to KMS
- ✓ Checks version metadata



Result: Both win — RAG is fine for single-hop

Round 2: The Stale Document Trap

v1 doc says 180-day rotation. v2 says 90-day. Which does your agent return?

RAG Agent — Fails

- X Returns stale v1 content
- X Says "180-day rotation"
- X No superseded_by check
- X Confidently wrong answer

Resource-Graph Agent — Wins

- ✓ Reads superseded_by header
- ✓ Follows to current v2 doc
- ✓ Reports version conflict
- ✓ Returns "90-day rotation"



⚠ The headers told you it was stale. You just didn't read them.

Round 3: The Honest Failure

A link to a compliance doc is missing from the graph

RAG Agent

- ✗ Retrieves an irrelevant chunk
- ✗ Hallucinates an answer
- ✗ Does not know what it doesn't know

Resource-Graph Agent

- ✓ Follows link → detects 404
- ✓ Reports dead end explicitly
- ✓ Fails transparently, not silently



"I don't know" > a confident hallucination

Key Takeaways

- 1 MCP Resources already form a knowledge graph - URIs are nodes, typed links are edges
- 2 Read the headers: `superseded_by`, `depends_on`, `last_modified` prevent stale answers
- 3 Graph agents outperform RAG at multi-hop and detect version conflicts
- 4 Honest failure > confident hallucination — broken links are features, not bugs
- 5 Start today: add typed metadata to your MCP resources and let agents traverse



Thank You

Questions?

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