APPLIED AI FIELD NOTES - EXECUTIVE BRIEF

NEED TO KNOW FOR CIO, CISO & CTO — THE MCP 2026-07-28 RELEASE CANDIDATE (RC)

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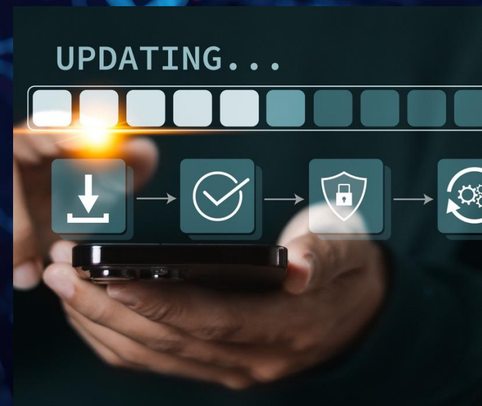
May 27, 2026



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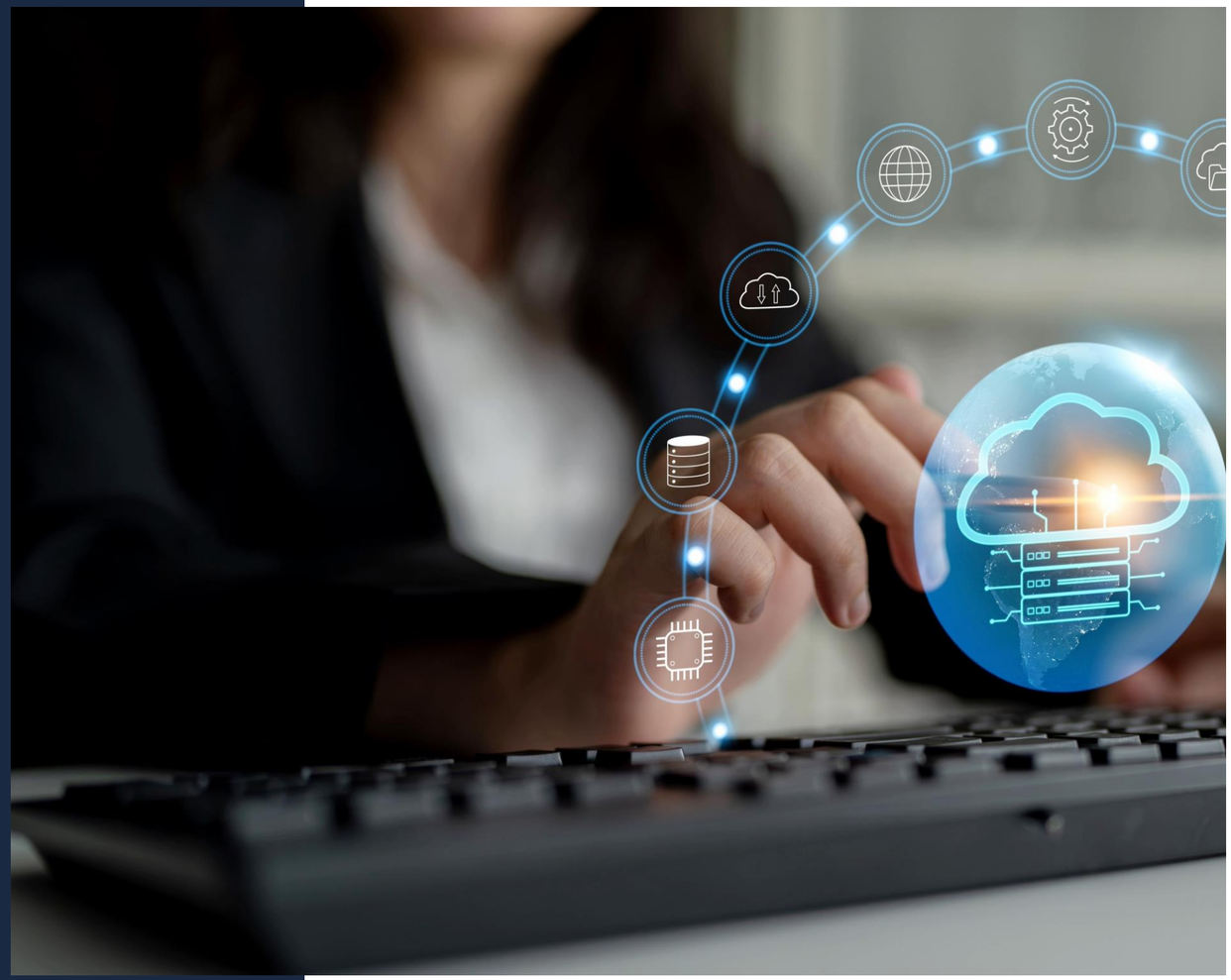
WHAT WE COVER

1. Introduction and Key Changes
2. Production Architecture & Migration
3. Security Implications & Improvements
4. Observability & Schema Governance
5. MCP Apps, OWASP Alignment & Remaining Risks
6. Next Steps & Wrap Up



WHY THIS RC MATTERS

A forced architecture reset

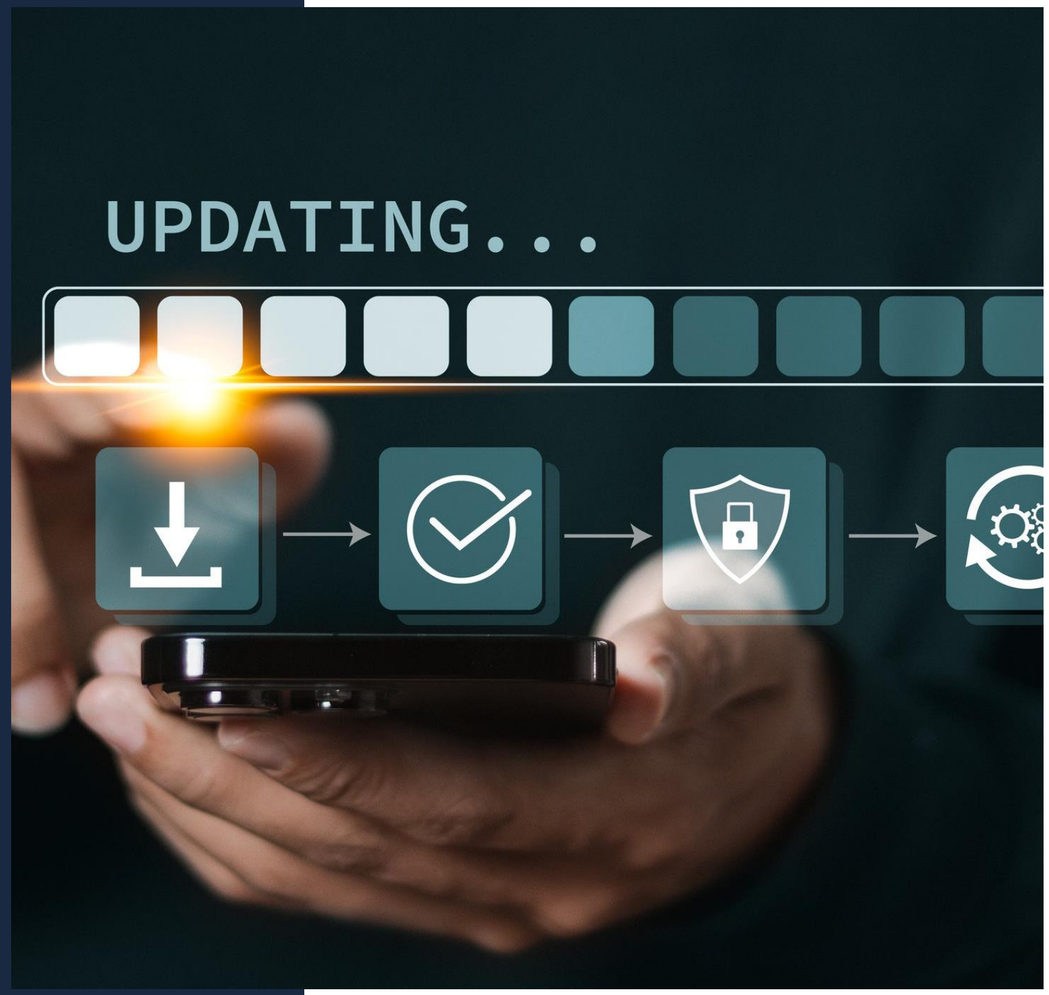
- MCP moves to **stateless transport**, eliminating session IDs and affinity assumptions.
- State still exists, but is exposed as explicit handles the model can use.

Clear migration window

- The final spec target of **July 28, 2026** anchors planning and testing.
- Use the RC period to surface hidden production dependencies early.

Security and ops ownership shifts

- Tool authors must design handle scope, expiry, and validation deliberately.
- Operators gain simpler scaling, but must upgrade governance and telemetry.



WHAT ACTUALLY CHANGED

Transport: stateless by design

- Each request stands alone; session IDs and sticky routing are removed.
- This shifts “continuity” from transport behavior into your application layer.

State becomes explicit handles

- Context is carried as visible handles the model can reference and reason about.
- Anything previously hidden in transport metadata must be represented explicitly.

Extensions mature into a system

- Extensions use reverse-DNS IDs, independent versioning, and capability negotiation.
- Teams can evolve features without assuming every client supports everything.

NEW BUILDING BLOCKS

MCP Apps (sandboxed UI)

- Delivers HTML UI in **sandboxed iframes** to reduce UI-side risk.
- All interactions route through JSON-RPC, preserving consent and audit gates.

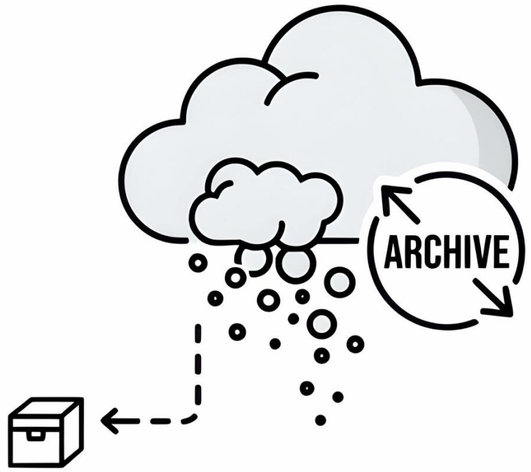
Tasks (long-running work)

- Adds a first-class shape for asynchronous execution and status tracking.
- Reduces the need for ad hoc polling patterns and brittle workflows.

Why this matters

- Expands capability while keeping state explicit, not hidden in sessions.

WHAT GETS DEPRECATED



Dep

Roots, Sampling, Logging are exiting

- The RC flags these features as deprecated, but still functional.
- Expect a long runway: at least **12 months** before removal.

Roots becomes explicit inputs

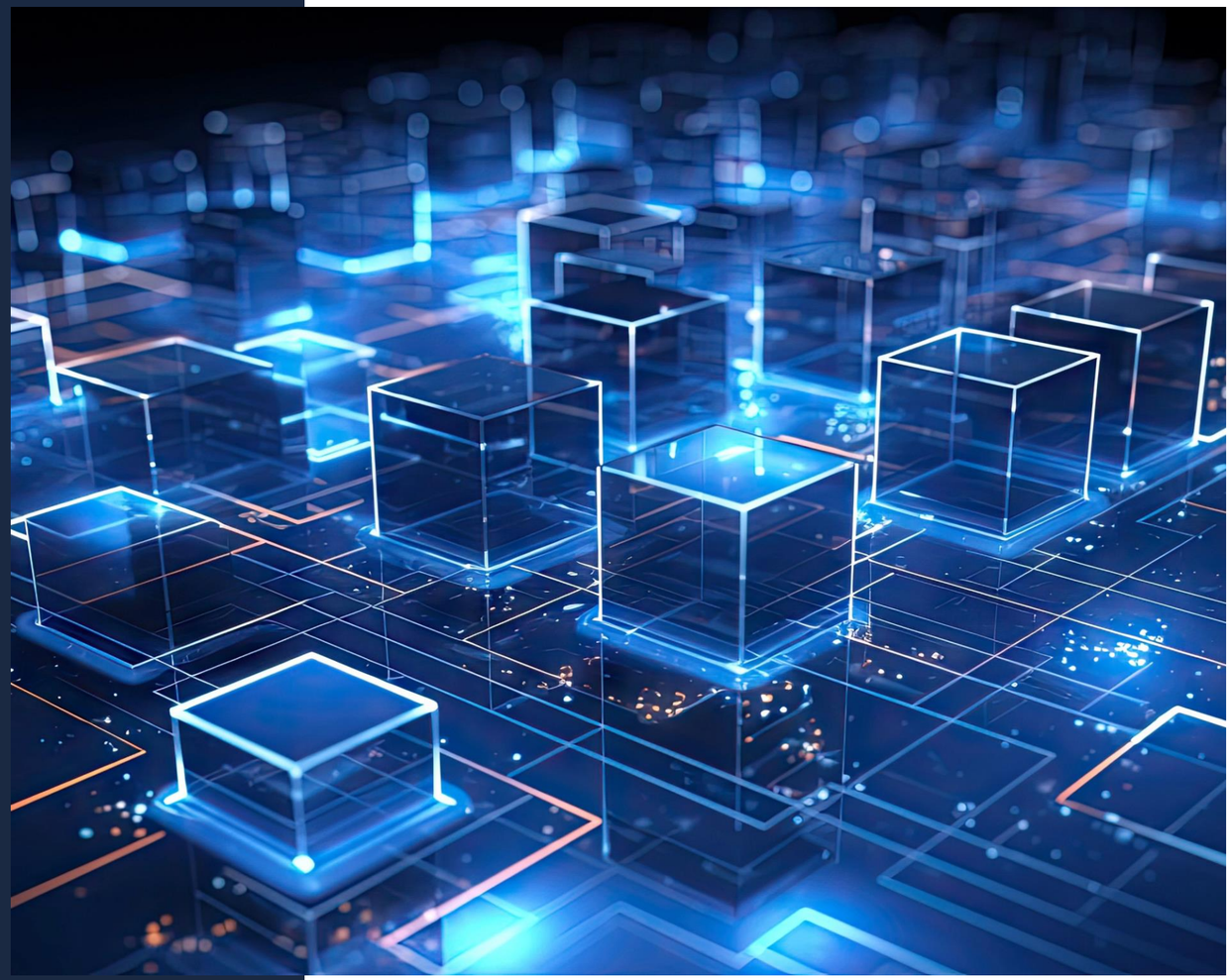
- Replace implicit “root” context with clear tool parameters.
- Keep any needed state in app-managed handles, not transport.

Sampling shifts to providers

- Move sampling behavior to direct model-provider APIs as needed.

Logging becomes OpenTelemetry

- Use OpenTelemetry for consistent audit, correlation, and detection.



PRODUCTION ARCHITECTURE SIMPLIFIES

Standard HTTP scaling

- Any healthy instance can serve requests without session affinity.
- Load balancers can stay generic, not MCP-aware gateways.

Simpler infrastructure footprint

- Retire sticky sessions and shared session stores from the stack.
- Reduce special-case components that complicate upgrades and operations.

More reliable operations

- Failover works like normal web services, with fewer edge cases.
- Horizontal scaling becomes routine instead of a protocol constraint.

MIGRATION WORK SURFACES

Hidden coupling is now visible

- Code that assumed affinity or in-memory state will fail under stateless routing.
- Transport metadata is no longer a safe place to stash operational context.

Make state explicit with handles

- Represent repo paths, browser contexts, and auth state as application-layer handles.
- Define handle creation, renewal, and invalidation as part of each tool contract.

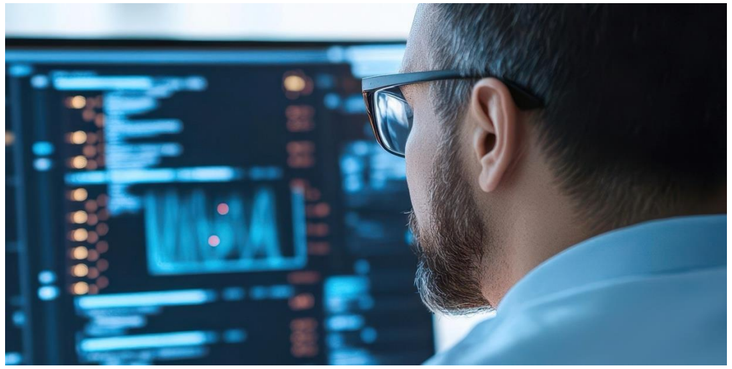
Expect discovery work in prod

- Most migration time goes to finding assumptions production previously masked.

HANDLES BECOME SECURITY CRITICAL

Treat handles as credentials

- IDs like task or resource handles can unlock sensitive server-side state.
- Assume any leaked handle can be reused like a bearer token.



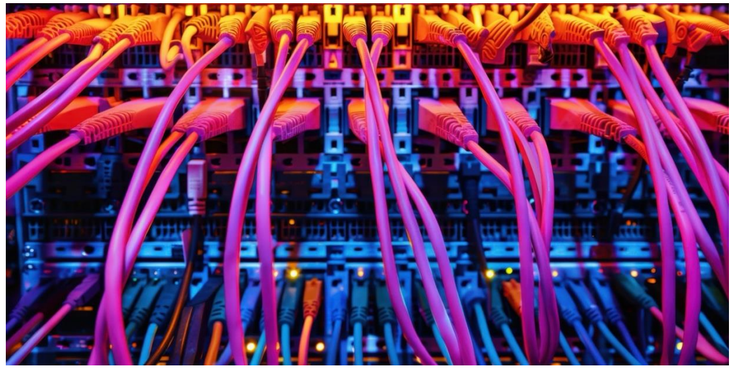
What makes handles dangerous

- Over-broad scope lets one handle reach unrelated users or tasks.
- Low entropy or long lifetimes enable guessing and replay hijacks.

New security ownership

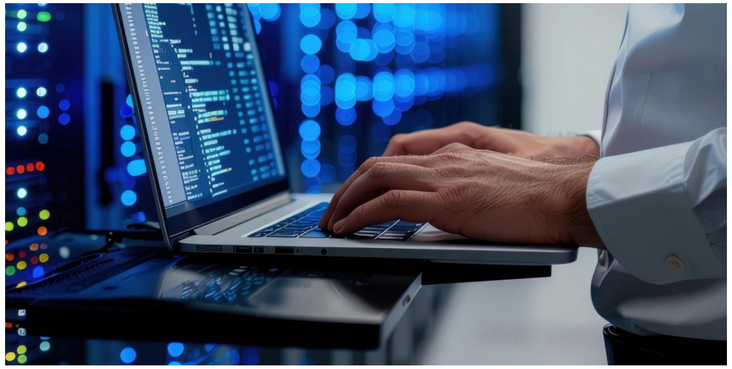
- Tool authors must set issuance rules, expiry, and validation checks.
- Design for least privilege so handles cannot silently accumulate access.

WHERE SECURITY IMPROVES



No session IDs to steal

- Stateless transport removes session identifiers from traffic, logs, and proxies.
- Compromised intermediaries expose less reusable material for hijacking.



Fewer high-value targets

- Eliminating shared session stores reduces a common attacker “loot box.”
- Scaling no longer depends on centralized state infrastructure to protect.

Stronger auth guarantees

- **Issuer validation** blocks confused-deputy misuse across MCP servers.
- **Credential binding** makes token replay materially harder in production.

WHERE RISK RELOCATES

Handles are the new attack target

- Treat every handle as a **bearer credential**, not a harmless identifier.
- Risk returns if handles are guessable, long-lived, or over-scoped.

Discipline required at issuance

- Issue handles with tight scope, short expiry, and strong uniqueness.
- Bind handles to tenant, tool, and task to prevent reuse.

Validation must be consistent

- Validate handle ownership and permissions on every tool invocation.
- Design for cross-tenant and cross-task isolation to block leakage.

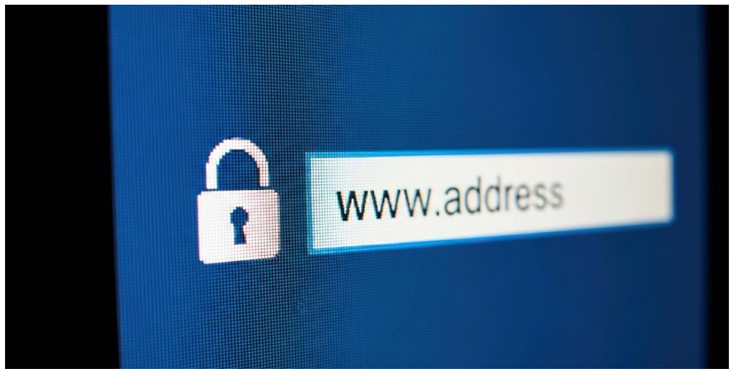
AUTHORIZATION GETS STRONGER

Stop cross-server token confusion

- Validate the **issuer** so tokens cannot be reused on other MCP servers.
- This blocks confused-deputy paths in one-client, many-server deployments.

Bind tokens to their authority

- Use credential binding so a token is tied to its issuing auth server.
- Reduces replay risk if tokens leak via logs or intermediaries.



Harden desktop and CLI flows

- Require application-type registration to prevent spoofed confidential clients.
- Tighten localhost redirects to close common desktop token-theft vectors.

OBSERVABILITY GETS BETTER

Telemetry moves to OpenTelemetry

- Protocol-level Logging is deprecated in favor of **OpenTelemetry** exports.
- MCP signals can flow into your existing SIEM, APM, and tracing stack.

Better correlation and audit

- Events correlate across tools, Tasks, and UI flows for end-to-end visibility.
- Security teams get stronger forensic timelines and more durable audit trails.

SCHEMA POWER NEEDS GUARDRAILS

More expressiveness, tighter boundaries

- JSON Schema 2020-12 lets tools specify precise inputs and types.
- Clearer contracts reduce ambiguous payloads and some injection paths.

New failure modes to defend

- External schema references can create **SSRF** and dependency risks.
- Pathological schemas can trigger validation **DoS** via resource exhaustion.

Operator takeaway

- Treat schema processing as a hardened component with limits and allowlists.

MCP APPS AND TASKS RISKS

MCP Apps: UI with the same controls

- Render UIs in sandboxed iframes to limit direct UI attack paths.
- Route UI actions through JSON-RPC so consent and audit gates still apply.

Tasks: long-running work, formalized

- Use Tasks instead of ad hoc polling patterns for extended execution.
- Treat task identifiers as **bearer-like handles** with strict lifecycle controls.

Key operator risk checks

- Review permissions, handle scope, and cross-tenant access boundaries up front.
- Validate handle entropy, expiry, and server-side verification for every tool.

BEST OWASP ALIGNMENT

MCP07: authZ hardening

- Issuer validation blocks tokens being accepted by the wrong server.
- Credential binding reduces replay and cross-environment token confusion.

MCP08: auditability uplift

- OpenTelemetry replaces protocol logging and plugs into existing SIEM.
- Explicit state handles become directly traceable in security telemetry.

Why this matters in ops

- These are the clearest RC wins for production security teams.

PARTIAL OWASP COVERAGE

MCP01: token handling improves, ops still matter

- OAuth flow hardening reduces mistakes, but teams still own credential hygiene.
- Treat every issued handle like a credential: rotate, expire, and validate.

MCP02 & MCP10: explicit state needs governance

- Visible handles reduce hidden bleed, but weak scoping can re-create hijacking.
- Define scope boundaries up front: tenant, tool, task, and time limits.

MCP03 & MCP05: schemas help, not a silver bullet

- Stronger schemas and extension governance narrow tool shadowing and misuse paths.
- Pathological schemas and external references can still enable DoS or SSRF.

WHERE THE PROTOCOL STEPS BACK

MCP04: Supply chain remains external

- Conformance helps quality signals, but cannot prove artifact provenance.
- You still need signing, reviews, and trusted registries.

MCP06: Prompt injection is upstream

- Protocol changes do not stop malicious instructions in retrieved content.
- Mitigate with workflow controls, least privilege, and human review.

MCP09: Shadow servers are governance

- Stateless transport can lower friction to spin up rogue endpoints.
- Counter with discovery, allowlists, and continuous connector inventory.

3 TAKEAWAYS FOR MONDAY'S HUDDLE

1) Hidden session coupling is the first thing to surface

- Catalog features relying on affinity, transport metadata, or in-memory state.
- Refactor them into explicit, scoped handles the model can pass.

2) Handles need credential-grade discipline

- Define scope, high entropy, and short lifetimes for every handle.
- Add validation and revocation paths; log handle issuance and use.

3) Use the RC window to harden production

- Run migration tests to surface state assumptions before Final.
- Threat-model tools, Tasks, and Apps; upgrade telemetry to OpenTelemetry.

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BOTTOM LINE

Operate like a standard web service

- Stateless transport removes sticky sessions and shared session-store complexity.

Secure what the protocol exposes

- Treat every state handle as a **credential** with tight lifecycle controls.

Big wins for security teams

- Stronger authorization rules reduce confused-deputy and token-replay risk.
- OpenTelemetry-ready events improve auditability across agent tool calls.

What success requires now

- Enforce governance: handle scope, validation, versioning, and conformance tests.

REFERENCES

Mapping the empirical evidence. Discovering the patterns that matter for Agentic AI in production.

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MCP Is Growing Up | MCP Security Best Practices | Anthropic framework

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OWASP MCP Top 10 | CSA MCP Resource Center

TIER 3 – Government & National Security

NSA CSI (PDF) | NIST NCCoE | NIST CAISI

TIER 4 – Threat Intelligence

MITRE ATLAS

TIER 5 – Regulatory

EU AI Act, Art. 14