

Damien House

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Principal AI platform architect, fractional CTO, and senior engineering advisor with 20+ years across platform modernization, DevSecOps, Drupal architecture, and applied AI. Strongest where LLM agents, enterprise tools, identity systems, retrieval pipelines, workflow controls, and human review must operate as one controlled, composable, multi-tenant system. Builds the substrate for safe agent adoption: tenant-isolated context, explicit action surfaces, MCP-ready tool exposure, skill governance, evaluation loops, RAG-backed memory, human-in-the-loop review, and audit trails for high-trust environments.

CORE COMPETENCIES

- **Multi-Tenant Agent Platform Architecture:** Architect agent service patterns that isolate tenant context, agent identity, tool permissions, session state, memory, and workflow execution; establish namespace and tenant-isolation models that reduce cross-domain data leakage and support reusable enterprise assistants.
- **Context & Harness Engineering:** Design production-grade harnesses for tool dispatch, session state, error recovery, scratchpad isolation, dynamic skill loading, context compaction, and token-budget control, treating the LLM context window as a governed enterprise resource.
- **MCP, Skill Governance & Interoperability:** Define MCP-compatible tool surfaces, typed schema contracts, server registries, auth boundaries, A2A delegation, usage telemetry, versioned skills, approval workflows, vetting, and deprecation paths.
- **Guardrails, Evaluation & Compliance Defensibility:** Combine schema validation, policy-as-code, architecture constraints, tests, static analysis, RBAC/ABAC, structured logging, LLM-as-judge, human approval, audit trails, and explainable context provenance.
- **Retrieval-Backed Knowledge, DevSecOps & Technical Leadership:** Design RAG pipelines, memory hierarchies, modality-aware chunking, source-grounded outputs, content governance, CI/CD, testing, scanning, release practices, and cross-functional decision systems.

TECHNICAL SKILLS

- **Languages & Frameworks:** Python; TypeScript/JavaScript (Node.js, React, Next.js); PHP (Drupal 7–11); HTML/CSS; SQL (PostgreSQL, MySQL, MariaDB), NoSQL; GraphQL & REST API design.
- **AI, Agentic Systems & Automation:** OpenAI, Anthropic, Llama, Mistral; GitHub Copilot, Cursor, Claude Code; RAG, MCP tool exposure, tool/function calling, A2A orchestration, multi-agent workflows, context compaction, prompt management, skill registries, LLM-as-judge; LangChain, LangGraph, LlamaIndex; Spec Driven Development: BMAD, RuFlo, Spec-Kit.
- **DevOps, Data & Governance:** AWS, Azure, GCP, Acquia Cloud; Docker, Kubernetes, Rancher; GitHub Actions, GitLab CI; Terraform, Ansible; Elasticsearch, PostgreSQL, Redis, Solr, Qdrant concepts; RBAC/ABAC, namespace isolation, SSO, PII/PHI-aware workflows, audit trails, policy-as-code.
- **Web, Content & Collaboration:** Drupal CMS, API-first and headless architectures, React/Next.js, component systems, WCAG 2.2, Section 508, Jira, Confluence, Figma, Miro, Git/GitHub, Slack, Zoom.

WORK EXPERIENCE

Fractional CTO & Principal Architect – 109.studio (June 1996 – Present, Washington, DC / Remote)

Principal-led architecture practice focused on platform modernization, DevSecOps, applied AI workflows, agentic engineering, content governance, and prototype-to-production execution for founders, product teams, and enterprise platform environments.

- **Context Control Center architecture:** Designed a governed context-management layer with tenant-aware memory hierarchies, context compaction, source attribution, permissioned retrieval, review workflows, and

auditable assembly; extended namespace isolation into AI context provisioning, improving answer accuracy by 40% to 60% while cutting no-result dead ends by 50%.

- **MCP interoperability and skill governance:** Defined MCP-compatible tool contracts, typed schemas, server registry metadata, auth boundaries, usage telemetry, and versioned AI skills with ownership metadata, approval states, progressive disclosure, usage analytics, security vetting, publishing controls, and deprecation paths.
- **Agent harnesses and guardrails:** Designed harness patterns for tool dispatch, session state, scratchpad isolation, retry logic, error recovery, workflow checkpoints, and escalation paths, combining schema validation, policy checks, test execution, static analysis, LLM-as-judge review, and human approval to make long-running workflows observable and recoverable.
- **Retrieval and content governance:** Architected retrieval-backed context strategies using metadata, modality-aware chunking, source-grounded outputs, memory hierarchies, and state isolation; expanded AI-supported audits from 50-page samples to 100% of a 6,000+ item estate, reduced audit cost to roughly \$400 in API compute, and cut alt-text generation time by 80% to 90%.
- **DevSecOps and prototype-to-production execution:** Standardized CI/CD, containerized environments, automated testing, dependency scanning, code-quality gates, release practices, and operating documentation; reduced PR review time by 20%, caught 15% to 30% more defects, cut rework by 10% to 25%, and compressed 3-to-6 month prototype or modernization cycles into 3-to-4 week delivery paths.

Senior Technical Consultant – GXM Consulting (Aug 2022 – Apr 2025, Washington, DC / Remote)

U.S. Department of Commerce, International Trade Administration: trade.gov, a high-traffic federal platform with 61 content types, 338 fields, 72 views, 294 templates, and 24 custom modules.

- **Cloud platform modernization:** Architected migration from Azure-hosted delivery to Acquia Cloud, standardized Composer deployments and Docker/DDEV environments, reduced release risk, improved onboarding velocity, and created a foundation for automated testing, AI-assisted review, security scanning, and governed workflow automation.
- **Enterprise content substrate and governance:** Engineered 24 custom modules across 61 content types and 338 fields, remediated toward WCAG 2.2 AA, authored deployment and environment SOPs, and strengthened cross-functional delivery practices, improving readiness for retrieval pipelines, content intelligence, regression testing, and human-in-the-loop workflows.

Senior Technical Consultant – Innosoft Corporation (Jul 2021 – Jun 2022, Washington, DC / Remote)

U.S. Department of Commerce, National Telecommunications and Information Administration: NTIA.gov, sole technical lead for Drupal 7 to 9 migration.

- **Legacy-to-modern accessible platform migration:** Led full code and infrastructure transition through two-week delivery cycles, built responsive themes, custom modules, and D3.js visualizations, extended QA/UAT, delivered ahead of schedule, and achieved zero downtime while preserving Section 508 / WCAG alignment and future PaaS readiness.

Senior Technical Consultant – Focused Management, Inc. (May 2017 – Dec 2020, Washington, DC / Hybrid)

U.S. Department of Agriculture, Office of the CIO – Platform Services: enterprise platform modernization across 13 mission-critical sites.

- **Multi-site platform consolidation:** Designed and led migration of 13 sites from fragmented Windows/IIS/SQL Server infrastructure to Linux/Apache/MariaDB, reducing operational fragmentation and creating a maintainable foundation for shared services and multi-tenant operations.
- **Containerized delivery and identity governance:** Introduced the organization's first containerized production environment using Docker and Rancher-orchestrated CI/CD, implemented USDA eAuth SSO, reduced environment drift and credential fragmentation, supported 24/7 operations, and delivered three months ahead of schedule.

Senior Technical Consultant – Blackstone Technology Group (Nov 2013 – Dec 2016, Arlington, VA / Hybrid)

U.S. Department of Agriculture, Food and Nutrition Service (FNS) & Agricultural Marketing Service (AMS): fns.usda.gov, ams.usda.gov, lead developer and Drupal SME for public-platform modernization.

- **Reusable platform patterns and secure integrations:** Directed AMS modernization from legacy systems to Drupal 7, integrated Market News data flows and PIV authentication, and established reusable content, authentication, and deployment patterns that reduced future implementation risk.
- **Engineering execution discipline:** Coached cross-functional Agile delivery practices that increased sprint velocity by 67% from 18 to 30+ story points during critical phases, improving throughput and acceptance confidence without weakening quality gates; consistently received "Exceeds Expectations" evaluations.

EDUCATION

- **Morgan State University** – Electrical Engineering, 1997–1999
- **Baltimore Polytechnic Institute** – STEM / Advanced College Prep, 1993–1997