

Alex Broyles

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Full-stack software engineer (.NET, TypeScript / React, Python) shipping across six industries — and the AI systems that make engineering faster and verifiable. I build custom agents, 10+ MCP servers, and autonomous, self-verifying pipelines wired directly into the delivery loop.

6

Industries delivered in

10+

Custom MCP servers built

5

Autonomous execution systems

700+

Pages in knowledge graph

SELECTED WORK

Enterprise CPQ Platform Modernization

Manufacturing & distribution

Modernized a 10-solution / 200+-project order-entry & product-configuration monorepo across three .NET generations — including a polymorphism-safe JSON-serializer migration proven by a 147-test parity suite, plus a jQuery→React UI transition.

C# / .NET (Framework→8) · ASP.NET Core · Kendo UI · WinForms (CAD) · Azure Functions · SQL Server · Dataverse

Demand-Response Calculations & Sync Platform

Energy / utility markets

Serverless financial-impact calculation API and bi-directional Dataverse↔Oracle sync on a Dynamics 365 backbone — event-driven with Polly retry / dead-letter, webhook contract verification, and dry-run audit logging for safe production sync.

.NET 8 Azure Functions (isolated) · Dataverse · Oracle · Service Bus · Terraform · App Insights

Multi-Region Revenue-Quoting Tool

Energy / utility markets

Rebuilt a sales revenue estimator as a React SPA over a pure-TypeScript calc engine covering 8 ISO regions (~26 programs), with a “every revenue calculation has a dollar test” parity discipline and a 19,175-ZIP → ISO/zone lookup.

React 19 · Vite · Tailwind v4 · TanStack Query · TypeScript engine + Vitest

Airline Crew-Scheduling System

Aviation

Modernized a crew “line-check” scheduling platform from legacy Spring Boot / FastAPI to Node Fastify on AWS Lambda — an event-driven hexagonal rebuild validated by a legacy-parity audit and ~106 tests, with full infrastructure-as-code.

Node / Fastify · AWS Lambda · Terraform (API GW · DynamoDB · EventBridge · SQS) · React

AI ENGINEERING

- **Built an ecosystem of 61 Claude Code skills, 9 subagents & 31 commands** (plus 18 governance hooks) that encode repeatable workflows and auto-steer generation against 20 codified standards.
- **Authored 10+ Model Context Protocol servers** — read-scoped Dataverse (local + an AKS-hosted connector with per-request Entra JWKS validation), Fabric SQL, Redis (TLS, runtime key fetch), Azure DevOps, SharePoint, and more.
- **Designed an autonomous build-&-verify engine** — recon → plan → execute → verify → audit → fix, each phase model-matched and run in an isolated git worktree, exposed over a local REST API, with a contract mode binding 100% of requirements to passing tests.
- **Built a ~700-page knowledge-graph RAG** (general + isolated per-client vaults) for grounded, cited answers, plus a self-improving learnings loop persisted to SQLite across Claude Code and Codex.

Client names withheld; work shown by industry, role, and stack.

CORE SKILLS

LANGUAGES

C# / .NET · TypeScript · Python · Rust · SQL · PowerShell

FRONTEND

React 19 · Next.js · Tailwind · Three.js / R3F · WinUI / WPF

BACKEND

ASP.NET Core · Azure Functions · Fastify / Hono · FastAPI · Node.js

DATA & CLOUD

Azure · AWS · Dataverse / D365 · SQL Server · Oracle · Postgres / Supabase · Terraform · Docker / K8s

AI & TOOLING

Claude Code · Codex · Kiro · MCP (10+ servers) · Multi-agent orchestration · RAG · Playwright

ALSO BUILT

An AI vision document-extraction service (D365), a multi-tenant SharePoint employee hub (secretless managed identity), a survey-enablement portal (row-level security), and ~25 developer tools & MCP utilities.

FOCUS

Turning AI from a novelty into reliable engineering leverage — the tooling that builds the software, verified end-to-end.