KEITH SWYER

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SUMMARY

Principal-level engineer specializing in distributed systems, large-scale backend architecture, and high-throughput platform design.

Deeply hands-on with 20+ years building resilient systems in .NET, C#, Elixir, SQL, and cloud-native environments.

Expert in **AI-augmented engineering**, using LLM-driven tooling to accelerate architecture evaluation, code analysis, modernization, and system correctness.

Combines architectural ownership with direct coding, rigorous system design, and cross-team technical influence.

AI-DRIVEN ENGINEERING IMPACT

- Introduced and scaled **AI-augmented development workflows**, using structured prompt engineering, context-management strategies, and correctness guardrails to improve throughput and reduce defects.

- Built and integrated **LLM-based static analysis and dependency-mapping tools** to accelerate modernization, API boundary redesign, and high-risk refactoring.

- Applied AI-assisted architectural evaluation to explore service boundaries, identify failure modes, and validate scaling strategies before implementation.

- Used AI-driven refactoring acceleration to reduce multi-week migration cycles (.NET Core, EFCore, schema evolutions) to days.

- Developed AI-enhanced CI/CD agents for automated test interpretation, log analysis, documentation synthesis, and debugging support.

- Trained engineers and technical leads on model selection, prompt strategy, reliability patterns for AI usage, and production-safe LLM workflows.

ARCHITECTURE & SYSTEMS IMPACT

- Designed and modernized high-throughput backend systems handling **250k+ requests/day**, improving latency, resiliency, and predictable scaling.

- Led multi-service consolidation initiatives, simplifying **6+ microservices** into unified architectures that reduced domain complexity and increased engineering velocity.

- Executed large-scale **database migrations, schema redesigns, and data merges** with full ACID correctness and zero data loss.

- Architected resilient, autoscaling distributed systems—including a scraper-agent platform orchestrating **3,000+ concurrent pods** and tens of thousands of daily inbound connections.

- Modernized platform stacks (.NET Framework → .NET Core; EFCore 2→7) with AI-assisted refactoring and dependency analysis to rapidly reduce technical debt.

- Improved reliability and performance through structured observability, performance profiling, caching strategies, and fault-tolerance patterns.

- Built robust API integration and Playwright-based E2E testing frameworks enabling **idempotent, deterministic** test runs across web and mobile.

CORE PRINCIPAL STRENGTHS

Distributed Systems Architecture • High-Throughput Backend Design • AI-Assisted Coding • Hands-On Coding (C#, .NET, Elixir, Python) • Performance Engineering • System Boundary Design • Resilience & Reliability Engineering • Domain Modeling • Cloud Architecture (AWS) • Observability • Schema Evolution • Scalability Strategy • Architecture Governance • Modernization Programs • Mentor & Technical Leader

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Engineering Technical Lead – Backend | Deck

2024 – Present | .NET, C#, Mssql, Redis, Python, Azure, Kubernetes, Claude, Codex

Principal-level contributor owning key architectural decisions while remaining deeply hands-on.

- Architected and implemented core backend and API redesigns supporting **250k+ daily requests**, improving latency profiles and predictability under load.

- Delivered major database modernization, redesigning schemas, indexes, and query pathways for high-concurrency workloads.

- Co-architected and coded critical components of the scraper-agent platform coordinating **3,000+ pods**, providing autoscaling, resilient orchestration, and fault-tolerant design.

- Defined engineering guardrails, architectural documentation standards, and modernization strategies that pushed the platform to production-grade reliability.

- Used AI-assisted dependency analysis and code mapping to guide boundary redesigns and accelerate high-risk refactors.

- Mentored engineers on architecture, performance reasoning, and AI-accelerated development workflows.

Software Engineering Lead | RVezy

2021 – 2024 | .NET Core, C#, EFCore, PostgreSQL, Redis, Playwright, AWS

Architectural owner for platform simplification and modernization.

- Consolidated **six microservices** into a unified system, reducing latency, simplifying ownership boundaries, and lowering operational overhead.

- Led and implemented a full system + database merge with **complete ACID correctness**, zero orphaned data, and simplified domain logic.

- Modernized the data layer through EFCore upgrades (2→3→7), resolving evaluation problems and improving performance across heavy queries.

- Designed and delivered an **idempotent API integration testing framework**, and replaced Selenium with a unified Playwright suite across all clients.

- Refactored and stabilized the financial architecture, improving reliability and maintainability.

- Leveraged AI-assisted refactoring, design analysis, and debugging to accelerate modernization efforts.

- Provided architectural guidance and deep technical mentorship on distributed systems and data correctness.

Senior Software Engineer | Rotabull

2020 – 2022 | Elixir, Phoenix, .NET, PostgreSQL, Redis, AWS

- Built backend services in Elixir and .NET across search, ingestion, and operational workflows.

- Designed distributed ingestion and search pipelines supporting high-volume marketplace operations.

- Contributed to architectural strategy, reliability improvements, and data correctness initiatives.

Director of Software Development | Portal.io

2011 – 2019 | ASP.NET, .NET Core, ServiceStack, PostgreSQL, Algolia, Redis, AWS

- First engineering hire and principal architect for a platform processing **millions of daily records**.

- Modernized the system across multiple stack generations: ASP.NET → MVC → **.NET Core** with containerized AWS deployments.

- Designed and implemented high-throughput search, EDI integrations, real-time messaging, and distributed ingestion systems.

- Migrated core data infrastructure to **PostgreSQL, Algolia, Redis**, improving search performance and operational cost.

Senior Software Developer | Penta Technologies

2007 – 2016 | C#, WPF, WinForms, Oracle, MSSQL

- Lead engineer for a large-scale offline-first workforce management system used in field operations.

- Built complex WPF/WinForms components and distributed synchronization frameworks across Oracle and MSSQL.

EDUCATION

BSc, Computer Science (Software Engineering Specialization)
Western University — Full Academic Scholarship; Academic All-Canadian

SKILLS

Languages & Frameworks
C# • .NET • Elixir • Python • SQL • EFCore • WPF • WinForms

Architecture & Systems Design
Distributed Systems • High-Throughput APIs • Event-Driven Architecture • Domain Modeling • Fault-Tolerant Systems • Observability • Reliability Engineering • Performance Profiling • Schema Evolution • Scalability Planning

Databases & Infrastructure
PostgreSQL • MSSQL • Redis • Algolia • Oracle • AWS • Docker • Kubernetes • CI/CD • Logging & Monitoring

AI-Augmented Engineering
AI Coding Assistants • Prompt Engineering • Context Engineering • Automated Code Analysis • AI-Accelerated Refactoring • Architecture Evaluation with LLMs • Safe-Use Frameworks

Leadership
Architecture Governance • Technical Strategy • Deep Code Mentorship • Cross-Team Collaboration • System Modernization • Engineering Culture Development