

Michael L. Welles

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Overview

Engineering leader with 15+ years of experience building and scaling high-performance teams to deliver complex platform products on time and within budget. Proven track record leading teams of 14-20 engineers through full product development lifecycle—from technical roadmap and architecture through deployment and maintenance. Deep technical background in cloud platforms (AWS, Azure), distributed systems, and platform orchestration. Achieved 2.5× velocity increase at MediData while maintaining product quality through agile practices, CI/CD automation, and close product collaboration. Experienced in hiring, mentoring, and retaining top talent while fostering innovative and collaborative engineering culture.

Core Technologies

Cloud & Infrastructure: Kubernetes, Docker, AWS (SQS/SNS, S3, IAM, VPC, SageMaker), Azure, Terraform **Platform & Orchestration:** Microservices architecture, distributed systems, API design, GraphQL, gRPC **Languages & Frameworks:** Python, Go, Rust, TypeScript, Swift, Kotlin, Java **Data & Databases:** Databricks, Spark, PostgreSQL, DynamoDB, Elasticsearch **Reliability & Observability:** CI/CD, distributed tracing, metrics/logging, SLOs/alerting, incident response

Experience

Director of Software Development, Raytheon Technologies

Sep 2021 - Nov 2023 · New York, NY

Led development of next-generation data platform for Raytheon aerospace applications at Enterprise Data Services (formerly UTC Digital Accelerator).

- Led team of 14 developers across three agile projects, delivering real-time flight telemetry platform for Pratt & Whitney commercial jet engines. Managed hiring, performance reviews, career development, and team culture while maintaining aggressive delivery timelines.
- Defined and executed technical roadmap for streaming data platform (Databricks, Spark, Python) aligned with product strategy and business goals. Platform processes thousands of engine sensors through fault detection and anomaly detection models.
- Oversaw end-to-end software development lifecycle from architecture through deployment and maintenance. Designed ML model orchestration pipeline with comprehensive audit trails and parallel model evaluation using asynchronous patterns.
- Collaborated closely with product management, sales, and engineering teams to translate customer needs into technical requirements. Supervised onboarding and migration support for 40+ teams adopting the new platform.
- Led "inner-source" initiative to scale engineering capabilities: built SDKs for proprietary data formats, quickstart kits for new projects, and synthetic data generators.

Head of Technology, Dayforward

Jan 2020 - Sep 2021 · New York, NY

Head of technology and development lead for life-insurance startup. Led small team designing and building algorithmic underwriting and policy-management platform.

- Defined technical roadmap and executed end-to-end development of platform with Go microservices on Kubernetes, federated GraphQL API, and Vue.js frontend. Delivered complete platform in under ten months.
- Managed project timeline, resources, and budget to launch platform the same day the company received regulatory approval. Ensured scalability, reliability, security, and performance for regulated insurance industry.
- Collaborated closely with product management and business stakeholders to translate underwriting requirements into technical architecture and high-quality solution.
- Built and mentored engineering team, establishing agile development practices and collaborative culture from startup phase.

Director of Software Engineering, UTC Aerospace Systems

Feb 2019 - Jan 2020 · Brooklyn, NY

Managed team of 17 engineers at UTC Digital Accelerator overseeing multiple platform projects—IoT sensors, mobile apps for industrial refrigeration, standardized design systems, and developer tools.

- Led multiple concurrent project teams, managing timelines and resources across diverse technology stack. Delivered projects on time while maintaining quality standards.
- Hired, onboarded, and retained engineering talent during rapid growth phase. Fostered culture of innovation and collaboration across frontend, backend, and mobile teams.
- Normalized, documented, and evangelized engineering processes, standards, and best practices across organization. Established agile methodologies and tooling standards.
- Collaborated with product managers and stakeholders across business units to deliver customer-focused solutions.

Principal Engineer, Istari Digital

Feb 2024 - Jul 2025 · New York, NY

Istari Digital enables zero-trust digital collaboration for cyber-physical systems, connecting engineering tools to enable programmatic and AI-assisted automation of digital engineering workflows.

- Led team building secure backend registry service (Python, FastAPI, SQLAlchemy, PostgreSQL) and SDK. Designed database schema for complex asset relationships, tuned queries for lineage traversal, and managed zero-downtime migrations.
- Designed cryptographically verified asset lineage and DoD-compliant control tagging with Rust cryptographic core and bindings for Python and WebAssembly, wrapped by Python and TypeScript SDKs.
- Ensured CI/CD validated all compliance requirements on each release for deployment on secure and classified networks. Delivered all major milestones on time and successfully relaunched product for commercial and government clients.

Director of Engineering (Mobile), MediData

Feb 2017 - Jan 2018 · New York, NY

Led engineering teams responsible for Patient Cloud platform collecting clinical trial data from patients and clinicians via mobile devices and wearable sensors.

- Managed products including ePRO (iOS/Android), Patient Cloud (iOS), AppConnect (native SDK), Sensor Link (wearables platform), and supporting backend. Launched two major mobile initiatives.
- Instituted organizational and process improvements that increased average team velocity by 2.5× without compromising product quality. Implemented agile practices and CI/CD automation.
- Successfully hired and onboarded engineering talent while maintaining delivery velocity. Migrated all native development to Swift and Kotlin.

Lead Engineer / Chief Technologist, Riverdrop

Jan 2018 - Feb 2019 · New York, NY

Served as chief technologist for early-stage startup and led team of three senior engineers building specialized product search engine.

- Architected platform as microservices with discrete transformation steps, each packaged as Docker images and deployed via CI/CD to Kubernetes (built and managed with Terraform).
- Built asynchronous event-driven processing with AWS SQS/SNS and DynamoDB, implementing retry logic, dead-letter queues, and idempotency for reliable distributed processing.
- Designed ML-driven ETL pipeline (Python, spaCy, NLTK, scikit-learn) with image recognition on AWS SageMaker. Developed search API in Go against Elasticsearch indexes.

Principal Architect / Director of Mobile, Huge

May 2013 - Feb 2017 · Brooklyn, NY

- Led cross-functional team of 20+ iOS, Android, and backend engineers, QA analysts, designers, and product managers. Evangelized agile best practices, continuous integration, and continuous delivery.
- Instituted engineering guild system for cross-office knowledge sharing and formal sponsorship of guild-proposed R&D initiatives. One guild-led initiative generated new product proposal securing \$5M development contract.
- Championed innovation through new technology investigations, engineering blog, meetups, and open-source contributions. Fostered collaborative and innovative team environment.

Consulting Principal Engineer, CubeNexus.ai

Aug 2025 - Present · Remote

Advising on technical strategy and architecture for geospatial intelligence platform with LLM-based querying and 3D visualization. Rebuilt ingestion pipeline to handle multi-terabyte datasets (PySpark, Pandas), added real-time telemetry streaming with event-driven architecture, hardened API backend (Python/FastAPI), and established CI/CD across repositories.

Senior Software Engineer – iTunes Store Video Workflow Group, Apple

Mar 2008 - May 2011 · Cupertino, CA

Senior engineer on team of five responsible for encoding and assembling all iTunes video media. Owned encoding toolchain for processing cluster, specified deliverable media formats, developed validation test suites, and created reference media for hardware compliance testing. Led two major workflow rewrites for HDTV launch and international video expansion.

Education

Bachelor of Arts in History, The University of Chicago

Chicago, IL