

# Michael L. Welles

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## Overview

Platform engineer with decades of experience building distributed systems and data-intensive platforms at scale. Proven track record designing APIs, data models, and infrastructure that enable internal teams to ship features faster while maintaining reliability. Built streaming data pipelines processing thousands of sensors at millisecond latency, designed high-throughput async architectures with event-driven patterns, and led platform teams serving 40+ internal engineering teams. Comfortable diving deep into performance optimization, API design, and infrastructure while partnering with users to prototype solutions quickly.

## Core Technologies

**Languages & Frameworks:** Go, Python, Rust, Typescript **\*\*Data & Databases:\*\*** PostgreSQL, DynamoDB, Elasticsearch, Spark, Databricks **\*\*Distributed Systems:\*\*** Kubernetes, Docker, event-driven architecture, pub/sub, message queues **\*\*Cloud & Infrastructure:\*\*** AWS (SQS/SNS, S3, SageMaker), Terraform, microservices **\*\*Platform Engineering:\*\*** API design, data modeling, CI/CD, observability, distributed tracing, SLOs

## Experience

### Consulting Principal Engineer, CubeNexus.ai

*Aug 2025 - Present · Remote*

Advising on technical strategy for a geospatial intelligence platform. Rebuilt ingestion pipeline to handle multi-terabyte datasets (PySpark, Pandas), added real-time telemetry streaming with event-driven architecture, and hardened API backend (Python/FastAPI).

### 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 through programmatic and AI-assisted automation.

- Led team building secure backend registry service (Python, FastAPI, SQLAlchemy, PostgreSQL) serving internal engineering teams and external API consumers. Designed database schema for asset relationships and metadata, tuned queries for complex graph traversal, and managed zero-downtime migrations.
- Worked directly with internal users to rapidly prototype features for asset lineage tracking and metadata management. Built APIs that abstracted storage complexity while enabling teams to access their data efficiently.
- Cryptographic core written in Rust with bindings for Python and WebAssembly, wrapped by Python and TypeScript SDKs. Designed API interfaces balancing ease-of-use with performance requirements.
- Built CI/CD pipeline that validated compliance requirements on each release, enabling fast iteration without compromising reliability.

### Director of Software Development, Raytheon Technologies

*Sep 2021 - Nov 2023 · New York, NY*

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

- Technical lead for real-time flight telemetry pipelines processing thousands of engine sensors through fault detection and anomaly detection models. Built streaming data platform (Databricks, Spark, Python) handling high-throughput sensor data with millisecond performance requirements, triggering automated alerts based on severity.
- Designed ML model training and orchestration pipeline with comprehensive audit trails. Implemented parallel evaluation of multiple models without adding latency using asynchronous patterns and concurrent processing.
- Led platform team serving 40+ internal engineering teams adopting Databricks. Built SDKs for parsing proprietary data formats, quickstart kits, and synthetic data generators to accelerate internal users. Routed around blockers and worked with ambiguity to ship features quickly.
- Led team of 14 developers across three agile projects while managing platform migration for diverse internal customers.

### Head of Technology, Dayforward

*Jan 2020 - Sep 2021 · New York, NY*

Head of technology for life-insurance startup. Led team that designed and built algorithmic underwriting and policy-management platform.

- Built platform with Go microservices on Kubernetes, federated GraphQL API, and Vue.js frontend. Designed API contracts and data models for policy management, underwriting workflows, and integration with external systems.
- Completed initial development in under ten months, launching the same day the company received regulatory approval. Made pragmatic tradeoffs to deliver quickly without compromising reliability.
- Architected distributed system with async message processing, idempotency, and retry logic for critical financial transactions.

## **Director of Software Engineering, UTC Aerospace Systems**

*Feb 2019 - Jan 2020 · Brooklyn, NY*

Managed team of 17 engineers at UTC Digital Accelerator. Oversaw multiple platform teams—from IoT sensors and mobile apps to developer tools and design systems. Led efforts to standardize engineering processes and best practices across teams.

## **Lead Engineer / Chief Technologist, Riverdrop**

*Jan 2018 - Feb 2019 · New York, NY*

Chief technologist for early-stage startup. Led team of three senior engineers building specialized product search engine.

- Designed ML-driven ETL pipeline (Python, spaCy, NLTK, scikit-learn) for product identification and NLP-based entity extraction. Built image recognition and classification models on AWS SageMaker using OpenCV and scikit-image.
- Built asynchronous data flow using AWS SQS/SNS for event-driven processing with DynamoDB for metadata storage. Implemented retry logic, dead-letter queues, and idempotency for reliable high-throughput processing.
- Developed search API in Go against Elasticsearch indexes. Architected system as microservices with discrete transformation steps, each packaged as Docker images and deployed via CI/CD to Kubernetes (built and managed with Terraform).
- Designed APIs balancing performance, usability, and maintainability for both internal and external consumers.

## **Director of Engineering (Mobile), MediData**

*Feb 2017 - Jan 2018 · New York, NY*

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

- Managed products including ePRO, Patient Cloud, AppConnect SDK, Sensor Link wearables platform, and supporting backend. Launched two major mobile initiatives and migrated all native development to Swift and Kotlin.
- Instituted organizational and process improvements that increased average team velocity by 2.5×. Focused on removing blockers and enabling teams to ship faster.

## **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 a \$5M development contract.
- Directed projects including smart Bluetooth audio/video accessories with live streaming, companion apps with complex data synchronization, and B2B/B2C mobile commerce applications.

## **Manager of Mobile Technology, Consumer Reports**

*Jul 2011 - May 2013 · Yonkers, NY*

Founded mobile applications group and built in-house team for iOS/Android development. Developed and launched flagship ratings application and managed external vendors maintaining portfolio of legacy apps.

## **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 used by 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*