

JEFFREY R. PLEWAK

Senior Software Engineer — Platform, Compliance & Production Systems

Backend architecture • Distributed Systems • Cloud & operational AI

New Bern, NC • Remote (US)

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US Citizen • No Sponsorship Required

Professional Summary

Senior software engineer with 10+ years designing and operating platform systems in compliance critical high reliability environments. Specialized in Python based distributed systems, cloud automation, and audit ready delivery across financial , defense and cloud platforms (J.P. Morgan Chase, Lockheed Martin, IBM). I focus on production correctness, observability, and trusted compliant AI workflows and platform services where traceability, security and reliability are first class requirements.

Core Technical Skills

Languages & Runtime

Primary development in Python, with supporting implementation work in Java, C/C++, Go, Bash, TypeScript/JavaScript, and SQL across long-lived production systems.

Data stores & State

Schema design and performance tuning in PostgreSQL; in-memory and ephemeral state using Redis; access-pattern-driven persistence decisions across DynamoDB and MongoDB in regulated environments

Backend & Distributed Systems

Design and ownership of backend and platform services in Python (FastAPI, Flask) and Node.js, with schema-driven APIs, REST/gRPC interfaces, and service boundaries aligned to domain concerns.

Cloud & Platform

Platform engineering on AWS (EKS, EC2, Lambda, S3, RDS) with containerized deployments, infrastructure-as-code via Terraform, and hybrid and multi-cloud evaluation including GCP, with emphasis on security parity and cost control

Security, Compliance & Code Analysis

Design and enforcement of secure, audit-ready delivery pipelines, including software supply-chain practices (SBOM/SCA), SLSA-aligned build processes, artifact signing, provenance, and static analysis using LDRA and CycloneDX in regulated production environments.

AI-Enabled Systems

Design and evaluation of AI-enabled systems for production use, including LLM-backed workflows, retrieval-augmented pipelines, and NLP/OCR components, with emphasis on deterministic orchestration, observability, cost controls, and compliance constraints over model novelty.

Performance & System Tuning

Latency and throughput concurrency model selection, profiling, system telemetry, with SLO,SLA awareness and decision making under operational and regulatory constraints.

Professional Experience

MSTRO / Think Systems — Senior SW R&D Lead (Consulting) Remote, 09/2024 – 11/2025

- Led research and innovation efforts for next-generation AI and platform capabilities, developing operational MVPs to evaluate production readiness, scalability, and compliance constraints prior to broader adoption.
- Evaluated and introduced emerging AI, data, and distributed systems technologies—including LLM orchestration, vector databases, NLP pipelines, and containerized runtimes—focusing on reproducibility, observability, and operational viability rather than experimental novelty.
- Guided architecture and implementation reviews across CI/CD, compliance, telemetry, and KPI instrumentation, supporting refactoring and hardening of experimental systems for production use.
- Conducted technical interviews and assessments for candidates spanning platform engineering, CI/CD, compliance, and AI architecture, contributing to hiring decisions and technical standards.
- Designed and validated cloud-agnostic workflows and deployment patterns, including GCP-based evaluations, ensuring alignment with IAM, logging, security controls, and infrastructure-as-code parity across environments.

MyGeo LLC — Python Developer/Member/Owner West Palm Beach, FL 02/2024 – 09/2024

- Delivered a cloud-based SEO and communications platform, taking product scope from concept through MVP and customer delivery, including system architecture, implementation, and deployment.
- Designed and built full-stack systems using Python and Node.js with API-driven frontends and MongoDB-backed persistence, supported by automated ETL pipelines and operational workflows.
- Integrated AI-enabled workflows with external services and APIs to support content generation and communications use cases, emphasizing reproducibility and production stability over experimentation.
- Designed and delivered a real-time RTP/SIP push-to-talk system from prototype to customer deployment, including backend services, frontend integration, documentation, and architectural design.

J.P. Morgan Chase — Senior Software Engineer Plano, TX 07/2022 – 12/2023

- Designed, led and delivered cloud native automation tools.
- Reduced deployment risk by automating environment validation across staging and production, improving release confidence under regulated change controls.
- Served as production SRE for global banking systems on AWS and EKS, operating under strict compliance, audit, and change-management requirements.
- Led development of internal microservices for firewall automation, owning service design, implementation, and integration with platform workflows.
- Contributed to hybrid and multi-cloud architectural evaluations across AWS, GCP, and Azure, focusing on security controls, IAM models, network segmentation, logging, and audit readiness in regulated banking environments.
- Supported cloud governance and environment readiness efforts by validating automation, CI/CD compatibility, observability tooling, and disaster recovery considerations for potential GCP workloads.

Consulting (Nintendo, Rtx, AWS, Northrup) — Sr Consultant, Remote 09/2019 – 03/2022

- Delivered backend services and ETL-style data pipelines across multiple client engagements (Nintendo, Raytheon, AWS, Northrup), implementing and hardening solutions in Python, Java, and C++ to meet performance, reliability, and integration constraints in production environments.
- Automated build pipelines, infrastructure provisioning, deployments on AWS, improving delivery and overhead.
- Served as senior technical point of contact for DOD software safety certification for Aviation. Implementing processes for upgrading and establishing automation to improve software cycle release time
- Multi client automation, hardening and development across DoD Contractor, AWS pipeline automation/migrations, testing and development efforts. Led and developed software activities.

IBM Cloud — Senior Software Engineer, Austin, TX**01/2019 – 09/2019**

- Contributed to design and operation of Kubernetes-based microservices in Python and Go, supporting production cloud services with defined SLO/SLA targets in File and Block Storage production cloud.
- Owned CI/CD pipelines for containerized services, supporting build, deployment, rollback workflows.
- Participated in on-call rotations, incident response, and root cause analysis, contributing to service stability and operational resilience.
- Implemented observability and reliability improvements to enhance incident detection and recovery.

Lockheed Martin — Senior Software Engineer, Fort Worth, TX**01/2018 – 12/2019**

- Developed real-time C++ avionics software for F-35 mission systems, supporting pilot-facing tactical displays in certification-aware, safety-critical environments.
- Led automation of build, test, and instrumentation pipelines to improve DO-178 A/B compliance efficiency, significantly reducing manual certification effort and engineering cycle time. ~20hrs/week.
- Established full statement and branch coverage with traceable artifacts, enabling repeatable verification and audit readiness through LDRA-based analysis and toolchain integration.
- Strengthened certification and compliance workflows across mixed-language environments (C++, Python, Perl, shell), increasing consistency and reliability of verification processes across releases.

Fidelity Investments — Senior Python Engineer (Westlake, TX)**04/2015 – 12/2017**

- Built and operated backend systems supporting a large, multi-year enterprise automation program, emphasizing reliability, rollback capability, and performance profiling in production environments.
- Led refactoring of monolithic applications into service-oriented architectures, introducing clearer service boundaries and API-based integrations to improve scalability and maintainability.
- Strengthened development workflows and SDLC automation, reducing friction in build, test, and deployment processes across distributed teams.
- Mentored and onboarded engineers, contributing to technical consistency, shared ownership of production systems, and team capability growth.

Lockheed Martin — Software Engineer, Liverpool, NY**06/2012 – 04/2015**

- Developed and automated avionics simulation software under DO-178 compliance requirements, supporting verification and validation activities for safety-critical systems.
- Contributed to radar simulation and signal-processing systems, including TPQ-53 and F-35-related programs, supporting ballistics detection and operational field scenarios.
- Participated across the full software development lifecycle, including requirements definition, design documentation, implementation, verification, and audit support within regulated environments.

BAE Systems — Software Engineer Associate, St. Inigoes, MD**05/2011 – 06/2012**

- Developed multithreaded radar simulation software in Java and C++ for U.S. Navy systems, supporting real-time signal processing and operational scenario modeling.
- Contributed across design, implementation, and baseline development activities within structured, defense-oriented engineering environments.
- Worked within formal SDLC and SCAMPI-aligned processes, gaining early exposure to disciplined development, documentation, and verification practices.

Recent Projects

KProvEngine - Built a governance-first, local-only provenance engine for AI-assisted workflows with deterministic execution, explicit human review, and audit-grade evidence, enforced by scope-locked CI governance and strict dependency controls. [GitHub: https://github.com/carcodez1/KProvEngine](https://github.com/carcodez1/KProvEngine)

Education

B.S. in Computer Science

University at Buffalo (SUNY) 2008 – 2011 GPA: 3.4