

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.

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| IBM Cloud — Senior Software Engineer, Austin, TX | 01/2019 – 09/2019 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 | |
| Education | |
| B.S. in Computer Science | |
| University at Buffalo (SUNY) 2008 – 2011 GPA: 3.4 | |