

Abhinav Anand

Principal Engineer | Enterprise Architect | AI-Augmented Platform Builder

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Summary of Qualifications

- 22 years of experience in enterprise Java architecture, platform engineering, and solution design.
- Architected and owned **Sage** (formerly Workforce Intelligence Platform), Walmart's governed people-data analytics and access platform, now **in production at sage.walmart.com** - a five-layer security model and an MCP server exposing governed data to AI agents; built the foundational platform solo in ~5 months.
- In parallel, led an unplanned bug-bounty security remediation - closed all 23 in-scope HackerOne findings under a 3-week SLA with zero production incidents.
- Led Walmart's Operational/Engineering Excellence Council managing 20+ services with SLIs/SLOs and deployment governance.
- Delivered Walmart's OIDC-compliant SSO for 1.6M+ logins (Mexico DCP) across multiple international markets; architected the Bill C64 privacy-compliance adapter for Walmart Canada.
- Deep expertise in Spring Boot, Kubernetes, Docker, AWS/GCP, and DevSecOps; polyglot delivery across Java, Python, and TypeScript at enterprise scale.
- Published 50+ mobile apps as an entrepreneur; drove technical delivery and innovation at Apple and Cognizant.

Core Competencies

- Enterprise Architecture & Cloud-Native Engineering (Spring Boot, WebFlux, CQRS, Microservices)
- Query-Time Data Governance (AST parsing/rewriting with sqlglot; Row-, Column-, and Attribute-Level Security)
- MCP & Agentic Integration (governed data and tools exposed to AI agents)
- AI-Augmented Development & Workflows (Claude Code, Copilot, ChatGPT, LLM integration, RAG, LangGraph, MCP)
- Identity & Access Management (OIDC, OAuth2, SSO, IAM; PingFederate, Keycloak)
- Operational & Engineering Excellence (SLIs, SLOs, Cost Optimization, Change Governance)
- Platform & DevOps Strategy (Kubernetes, Docker, CI/CD, Infrastructure as Code)
- Production Observability (OpenTelemetry, Grafana, OpenObserve, Langfuse, golden-signal metrics)
- Event Streaming & Data Flow (Kafka, RabbitMQ, Redis)
- Database Technologies (PostgreSQL, BigQuery, MongoDB, Cosmos DB, MySQL, Oracle)

Certifications

- AI Engineering Program, Outskill, 2025 - 6-month intensive: LLMs, RAG, Prompt Engineering, Multimodal AI, AI Deployment
- Cyber Security (Using AI Tools), MSME-PPDC (Govt. of India), 2026
- Ethical Hacking, MSME-PPDC (Govt. of India), 2025
- Sun Certified Java Developer (2002)
- Sun Certified Java Programmer (2001)

Education

- Master of Business Administration, 2017
- Bachelor of Computer Applications, 2003

Tech Stack

- **Languages:** Java, Python, JavaScript, TypeScript
- **Frameworks:** Spring Boot 3, FastAPI, React 19, WebFlux, Hibernate, JPA
- **AI/ML:** LLM integration (GPT-4/Gemini/local models), LangGraph, LangChain, FAISS, Sentence Transformers, RAG, MCP Protocol
- **Cloud & DevOps:** AWS, GCP, Docker, Kubernetes, Jenkins, Ansible, OpenShift
- **Observability:** OpenTelemetry, Grafana, Prometheus, OpenObserve, Langfuse, Splunk

- **Database:** PostgreSQL, BigQuery, MongoDB, Cosmos DB, MySQL, Oracle, Redis
- **Messaging & API:** Kafka, RabbitMQ, GraphQL, REST, SOAP
- **Tools:** IntelliJ, VS Code, Jira, Git, Maven, Gradle

Professional Experience

Principal Software Engineer - Walmart Global Tech - Bengaluru, India

People Data Platform - Jun 2025 - Present

- Architected and shipped **Sage** to production at **sage.walmart.com** - Walmart's first governed agentic-analytics platform, where AI agents turn natural language into RLS/CLS-secured dashboards - as the sole engineer via a specification-first, AI-augmented workflow; a scope conventionally staffed by a 4-5 engineer team over 12-18 months, delivered in ~5 months.
- Designed the polyglot microservices architecture: Java/Spring Boot for authentication, RBAC, the REST gateway, and the MCP server; TypeScript/React 19 for the interactive dashboard frontend; Python/FastAPI for the SQL security firewall and the conversational AI layer.
- Built a five-layer security model enforced on every query (OAuth2/OIDC, RBAC, and row-, column-, and attribute-level security), centered on a **Data Firewall** that parses each generated SQL statement into an abstract syntax tree and rewrites it per viewer - injecting RLS predicates, masking restricted columns, enforcing a certified-table allow-list - before execution against read-only BigQuery; added a dual-token delegation model for governed "view-as" access that decouples data scope from executing identity while preserving audit attribution.
- Re-architected the Core query engine from Python to Java 21 (Virtual Threads + a refresh-aware 3-tier BigQuery cache with in-flight query deduplication), cutting multi-widget dashboard load from ~20-30s to ~2-3s - the performance foundation the agentic stack is built on.
- Delivered the governed-AI surface: an **MCP server** exposing certified queries as tools so AI agents (Code Puppy, Wibey) run analytics through the same access controls as every other client, and a LangGraph **Chat layer** on a code-orchestrated design (deterministic Python owns orchestration; the LLM is a narrow intent classifier) with natural-language-to-SQL and 100%-local RAG search.
- Delivered an interactive Dashboard Builder (26 widget types across 5 categories, event-driven pub/sub, cascading variables with topological resolution) with agent-driven authoring, and instrumented production observability end to end (OpenTelemetry golden signals, Grafana alerting, Langfuse LLM tracing with PII masking).
- Authored 50+ architecture decision records driving the platform's AI, governance, security, and data-access architecture.
- **[Over-and-above] Security remediation - ULearn International reporting platform.** Led an unplanned HackerOne bug-bounty + Snyk remediation - closed all 23 in-scope findings (15 Critical, 8 High) across 7 microservices under a 3-week SLA with zero production incidents; re-architected the JWT model (single mint point, server-side RBAC, no client-parameter trust) and stood up an 882-assertion SQLi regression suite retained as a permanent CI gate.

International Market Customer Engagement (Accounts, Identity) - Feb 2022 - May 2025

- Led technical initiatives for Identity, Profile, and Membership across Walmart International markets (Mexico, Canada, Chile).
- Architected OIDC-compliant SSO for the Digital Connections Program (Mexico), achieving 1.6M user logins and an 82% login rate; owned Bill C64 Phase 3 delivery for Walmart Canada, designing the Walmart Compliance Adapter (WCA) and integrating OneTrust for centralized consent management.
- Chaired the Operational & Engineering Excellence Council, driving SLOs, SLIs, and deployment governance across 20+ services.
- Chaired the daily Change Council for UI, OL, and BE layers, ensuring production stability.
- Achieved cloud cost optimization of \$6K-\$10K USD/month through rigorous monitoring using custom models and dashboards.
- Contributed to engineering culture via whitepapers on Java 21 patterns, the Privacy Compliance Adapter, and Single Identity architecture.

Principal Solution Architect - Applied Materials - Bengaluru, India

Aug 2020 - Feb 2022

- Led the Software Development Accelerator CoE; built code generators and promoted cloud-native and low-code practices; drove tech-stack standardization and framework adoption.

Associate Director - Cognizant (Client: Apple) - Bengaluru, India

May 2016 - Aug 2020

- Delivered 15+ global projects across customer systems, including the Apple Jobs Portal and contact-center tools.

Solution Architect - Custologix Solutions - Bengaluru, India

Mar 2015 - Apr 2016

- Developed a full-stack ERP for a retail customer and integrated ESL middleware.

Principal Product Specialist - X-ISS Inc. (HealthSignz) - Bengaluru, India

Jun 2014 - Mar 2015

- Architected an HPC monitoring and analytics tool used by global HPC customers.

Entrepreneur - Techworks Technologies Pvt. Ltd. - Kolkata, India

Nov 2009 - Jun 2014

- Founded a software-product startup and built Antida, a distributed P2P file-sharing solution.
- Managed product development and published 50+ mobile apps; developed JavaFX-based POS and embedded Java middleware.

Senior Software Engineer - Adept Software Avenues - Kolkata, India

Aug 2006 - Oct 2009

- Worked on Android, NFC, and J2ME projects including Visa Mobile and SIP-client apps.

System Engineer - Elecom Software Pvt. Ltd. - Kolkata, India

Jan 2004 - Jul 2006

- Developed SCADA-based HMI software for industrial automation using Java.

Passion Projects

- **Educational tools** - built <https://sinhaacademy.com> and <https://ajitkids.com> to teach Hindi and English; core functionality developed with GitHub Copilot.
- **Quiz Ajit** - built the <https://qajit.com> website and mobile app for exam preparation; used ChatGPT for brainstorming and ideation.
- **Writing** - technical blogging at <https://cyberaka.com>.