

Akhila Bezawada

Backend & Cloud Developer

7+ Years Experience

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Professional Summary

APPLICATION DEVELOPMENT & CLOUD MODERNIZATION

Backend Java Developer with 7+ years of experience in designing, developing, and deploying enterprise-grade **event-driven microservices** using **Java, Spring Boot, Kafka, and AWS Cloud**. Skilled in architecting and integrating **RESTful APIs** across distributed systems, ensuring secure, scalable, and high-performing communication between services.

Hands-on experience in **Docker** containerized cloud deployments using **AWS EKS, Lambda, S3, and API Gateway**, delivering automated and fault-tolerant applications. Adept at writing clean, maintainable, and testable code following **SOLID principles**, applying design patterns for reusability, and implementing DevOps-driven CI/CD pipelines for faster and more reliable releases.

MICROSERVICES ARCHITECTURE & API DEVELOPMENT

Proficient in end-to-end backend engineering, including **REST API design, validation, exception handling, and integration testing**. Skilled in applying **CQRS** and **Saga (Distributed Transactional Rollback)** patterns for reliable event coordination and building resilient services with **Resilience4j**. Experienced in using **Confluent Kafka** for asynchronous messaging between microservices handling millions of transactions.

VERT.X, ASYNCHRONOUS PROCESSING & PERFORMANCE OPTIMIZATION

Hands-on expertise in **Vert.X reactive programming**, leveraging **event loops, promises, and futures** to achieve high concurrency and low latency. Built reactive microservices capable of processing thousands of lightweight events per second. Combined Vert.x Futures, **Java CompletableFuture**, and non-blocking I/O to handle parallel computations for offer ingestion, eligibility checks, and redemption tracking. Used **Resilience4j circuit breakers** and **retry logic** to ensure reliability under load and network variance.

Applied asynchronous programming models to minimize thread contention and boost performance — *achieving up to 25% improvement in offer processing throughput*.

DATA ENGINEERING & STORAGE

Experienced in integrating both **NoSQL** and relational data systems to support high-volume transactions and analytical workloads. Designed flexible schemas using **Couchbase, GCP Lumi Bigtable, and MySQL** for low latency reads and persistence. Implemented **Redis Caching** to store frequently accessed metadata and reduce database hits. Built data ingestion and transformation pipelines that enabled near real-time campaign and redemption analytics.

CLOUD INTEGRATION & CI/CD AUTOMATION

Implemented containerized deployments on **AWS EKS**, and automated **CI/CD pipelines** through **GitHub Actions, XLR, and Hydra**. Integrated **AWS API Gateway** for API traffic management, throttling, and access control, along with AWS Lambda for background processing and S3 for data ingestion and archival. Utilized **CloudWatch** for observability, log management, and proactive alerting. Supported OpenShift-to-AWS migration, ensuring continuity across development, QA, and production environments.

SECURITY & COMPLIANCE

Developed secure and resilient microservices using **OAuth2/OIDC (Okta)** and **AWS Secrets Manager** for token and credential management. Implemented **IAM least-privilege** policies, enforced **TLS/mTLS encryption**, and adopted defense-in-depth security aligned with enterprise standards. Integrated **API Gateway authorizers** for authentication and fine-grained access control.

APPLICATION PERFORMANCE

Used **Apache JMeter** to test system scalability and pinpoint bottlenecks before production. Applied **VisualVM** for live JVM profiling and memory analysis, allowing precise tuning and early issue detection.

COLLABORATION & AGILE DELIVERY

Worked collaboratively with product managers, QA, and DevOps teams in **Agile sprint cycles** to deliver features iteratively. Participated in sprint planning, backlog grooming, code reviews, and retrospectives. Proven ability to analyze complex production issues, drive long-term fixes, and improve delivery velocity through automation and proactive monitoring.

KEY ACHIEVEMENTS

- 🚀 Delivered **25+ production-ready microservices** deployed across AWS EKS clusters.
- 🚀 Improved system performance and throughput by **25–30%** using asynchronous, event-driven processing.
- 🚀 Contributed to a **secure, scalable, and observable cloud-native architecture** supporting **millions of users** globally.

Core Skills

Architecture & Patterns: Microservices, Event-Driven Architecture, CQRS, Saga, Resilience4j (Circuit Breaker), REST API Design

Languages & Frameworks: Java 21, Spring Boot, Spring Data, Vert.X, REST APIs, Streams API, Multithreading and Concurrency.

Data, Messaging & Stores: Apache Kafka, Couchbase, GCP Lumi Bigtable, MySQL, Redis Cache, AWS S3

Security & Compliance: OAuth2, Okta (OIDC), AWS Secrets Manager, IAM (Least Privilege), TLS/mTLS

Application Performance: JMeter, VisualVM

Testing & Quality: Junit, Mockito, Postman

Cloud & DevOps: AWS EKS, AWS Lambda, AWS API Gateway, Docker, Kubernetes, GitHub Actions, XLR, Hydra (OpenShift), Jenkins

Observability & Operations: AWS CloudWatch, ELK Stack, X-Ray, ServiceNow

Work Experience

Software Engineer

American Express (contract) | Phoenix, Arizona, United States

Mar 2022 - Present

SYSTEM DESIGN & ARCHITECTURE

- Designed and architected **event-driven microservices** using **Java**, **Spring Boot**, **Vert.X**, and **Kafka (MSK)** to manage the full offer lifecycle — from campaign creation to redemption and analytics.
- Defined API specifications and contracts for **RESTful services**; implemented design patterns like **CQRS** and **Saga** for transactional consistency across distributed services.
- Applied **SOLID principles**, **domain-driven design**, and modular architecture to ensure scalability and maintainability.
- Designed data models using **CouchbaseDB**, **DynamoDB**, and **Aurora**, balancing performance and flexibility.

DEVELOPMENT & IMPLEMENTATION

- Developed secure **REST APIs** with **OAuth2/OIDC (Okta)** for authentication and fine-grained access control.
- Implemented **asynchronous processing** using **Vert.X Futures**, **Java CompletableFuture**, and **Kafka Streams**, improving throughput and responsiveness.
- Created a **high-performance Impressions microservice** handling thousands of concurrent events per second.
- Built centralized **exception handling** using **@ControllerAdvice** and validation utilities with **@Valid** annotations.
- Implemented **Resilience4j** for circuit breakers, retries, and rate-limiting under variable partner loads.

INTEGRATION & DATA FLOW

- Integrated **AWS API Gateway** for traffic routing and throttling; secured partner communication with **Okta OAuth2**.
- Developed **AWS Lambda** functions for data transformation and backend automation.
- Implemented **Kafka-based event communication** between Offer, Enrollment, Redemption, and Reward services for real-time data propagation.
- Managed credentials and secrets securely through **AWS Secrets Manager** integrated with **Okta**.

TESTING & QUALITY ASSURANCE

- Built **comprehensive test suites** using **JUnit** and **Mockito**, achieving over **90% code coverage**.
- Simulated **high-volume redemption traffic** using **Apache JMeter** to benchmark API scalability and latency.
- Implemented **integration testing** pipelines ensuring consistent behavior across microservices.
- Collaborated with QA teams to validate regression and performance test results.

DEPLOYMENT & DELIVERY

- Automated **CI/CD pipelines** using **GitHub Actions**, **XLR**, and **Hydra**, reducing deployment time by 40%.
- Deployed containerized services on **AWS EKS** and managed rollouts with zero downtime.
- Supported **OpenShift-to-AWS migration**, ensuring environmental parity and release stability.

MONITORING, MAINTENANCE & OPTIMIZATION

- Configured **AWS CloudWatch** and **ELK dashboards** for observability, metrics, and alerting.
- Integrated **CloudWatch metrics with ServiceNow** for automated incident notifications.
- Tuned JVM parameters and asynchronous thread pools, improving throughput by **25%** under peak traffic.
- Implemented proactive logging and correlation IDs for faster root-cause analysis.

Full Stack Engineer

Byteridge Software Pvt. Ltd. | Hyderabad, India

Jun 2016 - Jun 2020

SYSTEM DESIGN & DEVELOPMENT

- Designed and developed **microservices and UI components** for healthcare analytics applications using **Spring Boot** and **Angular**.
- Built **REST APIs** for data access and synchronization with **Kafka** for event streaming.
- Used **MongoDB** for flexible data storage and implemented caching with **Redis** to enhance performance.

TESTING & CI/CD

- Created automated **unit and integration tests** for critical API modules.
- Implemented **CI/CD pipelines** using **Jenkins** and **Azure DevOps**, improving delivery speed and reliability.

COLLABORATION & OPTIMIZATION

- Worked closely with product and QA teams in **Agile sprints** to deliver incremental releases.
- Optimized backend performance with **query tuning** and API profiling, reducing response times by 15%.

Education

Bachelor's Degree: Computer Science

K L University | India

2015 - 2019

Master's Degree: Computer Science

LAMAR University | USA

2020 - 2021
