

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.

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, CompletableFuture, Promises, Multithreading

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

Event-Driven Microservices Platform: Developed and maintained **Spring Boot** and **Vert.X** based microservices that manage the complete offer lifecycle — from campaign creation to redemption and analytics. Designed **REST APIs** secured via **OAuth2/Okta** and integrated **Kafka producers/consumers** for asynchronous event communication across microservices. Supported targeted rewards for millions of customers in near real time.

AWS Cloud Integration: Deployed containerized workloads on **AWS EKS**, integrated **AWS API Gateway** for API routing and throttling, and implemented **Lambda** functions for backend tasks and data transformations. Used **S3** for ingestion and archival, **CloudWatch** for observability and alerts, and **Secrets Manager** for secure property management. Actively participated in migration from **OpenShift** to AWS, ensuring minimal downtime and deployment consistency.

Vert.x & Asynchronous Event Handling with Performance Optimization: Developed an **Impressions microservice** using **Vert.x** to handle high-volume, lightweight offer-view events with minimal thread blocking. Leveraged **Vert.x Promises/Futures** and **Java CompletableFuture** for non-blocking concurrent operations, improving overall API responsiveness and reducing latency under peak load. Optimized microservice throughput with **Java Streams**.

Error Handling & Validation Frameworks: Developed centralized exception handling using **@ControllerAdvice** and designed validation utilities using annotations such as **@Valid** and custom validators to ensure API reliability and standardization across services. Applied **CQRS** for command-query segregation and **Saga** pattern for distributed transaction control. Implemented **Resilience4j retry/backoff** and **circuit breaker** patterns to ensure consistent throughput under fluctuating traffic.

Testing & Quality Engineering: Designed comprehensive unit and integration tests using **JUnit** and **Mockito** to validate business logic and event consistency. Built test data pipelines to simulate high-volume redemption transactions for performance and regression testing.

Monitoring, Logging & Issue Management: Established **ELK** based dashboards and alerts for proactive system monitoring. Integrated **CloudWatch** metrics with **ServiceNow** to trigger automated incident notifications. Assisted in production troubleshooting, identifying root causes, and providing permanent fixes for recurring issues.

CI/CD & Security: Automated pipelines using **GitHub Actions**, **XLR**, and **Hydra**. Managed secrets and tokens through AWS Secrets Manager and Okta integration.

Full Stack Engineer

Byteridge Software Pvt. Ltd. | Hyderabad, India

Jun 2016 - Jun 2020

Built microservices and UI components for healthcare analytics applications. Designed RESTful APIs and implemented data synchronization with Kafka and MongoDB. Integrated Jenkins and Azure pipelines for deployment automation.

Education

Master's Degree: Computer Science

Lamar University | USA

2020 - 2021