Aakash Kumar

Lead Software Engineer|H-1B (4 yrs available)

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Accomplished Senior/Lead Backend Engineer with 12+ years experience, specializing in cloud-native microservices with Java 21, Spring Boot, Kafka, and AWS (EKS / Kubernetes), skilled in building scalable, high-throughput applications.

Microservices and Foundational Architecture:
Led the implementation of a microservices architecture for critical financial functions, utilizing CQRS patterns to separate read/write responsibilities and significantly enhance system focus and scalability.

Event-Driven Systems:
Implemented a decoupled, event-driven architecture using Kafka, enabling asynchronous communication independent service deployments.

Distributed Transaction Management (Saga):
Implemented Saga compensation patterns to resolve data consistency challenges in multi-step, distributed transactions.

Performance and Concurrency:
Boosted throughput by over 30% and significantly reduced tail latency by migrating a high-load microservice to a reactive Vert.x framework.

Enhanced data processing efficiency using Java Streams, implementing single-pass aggregations and complex filter/map logic to improve performance for critical services.

Used Java Threads CompletableFuture to run in parallel: customer profile/segment, campaign budget remaining, merchant risk flags, and existing enrollments—shortening offer assignment time.

Data & Caching:
Accelerated reads with Redis cache, persisted documents in NoSQL Couchbase; defined REST APIs with OpenAPI/Swagger for consistent contracts.

Resilience and Reliability:
Mitigated system failures and improved operational awareness by deploying resilience patterns (timeouts, retries with backoff) and creating automated failure alerts in ServiceNow.

Comprehensive Security and Compliance:
Secured applications and APIs by implementing a multi-layered defense with Okta (OIDC scopes / OAuth2), API Gateway protections (rate limits, request signing), and Vault for secrets management.

Big Data Ingestion:
Built Amazon S3, AWS Lambda, Apache Spark pipelines to ingest merchant master, redemption transactions, and authorization data.

Cloud Delivery and Automation:
Automated CI/CD on AWS EKS using GitHub Actions, integrating quality gates, progressive delivery, and centralized observability using AWS CloudWatch for reliable releases.

Core Skills

FRAMEWORKS: Java, Java Streams, Java Concurrency, REST API, Spring Boot, Spring Data, Vert.X, Python,

ARCHITECTURE & PATTERN: Microservices, Event-Driven Architecture, Saga Pattern,
Command Query Responsibility Segregation (CQRS), Circuit Breaker (Resilience4j), Caching, Reactive Programming

DATA, MESSAGING & STORES: Kafka, Apache Spark, Redis Cache, NoSQL Couchbase, AWS S3

SECURITY: OAuth 2.0, OpenID Connect (OIDC), Okta (OIDC/OAuth2), HashiCorp Vault, AWS API Gateway

CLOUD & PLATFORMS: Amazon Web Services (AWS), Kubernetes, Docker, AWS Lambda, AWS EKS, Terraform

CI/CD & QUALITY: GitHub Actions, SonarQube, SAST/DAST Security Scanning, JUnit/Mockito

OBSERVABILITY & OPS: AWS Cloudwatch, Incident Management (ServiceNow), Performance Tuning

Work Experience

Lead Software Engineer
American Express (contract) | Phoenix, Arizona, United States

Apr 2023 - Present

Led an event-driven microservices platform on AWS to scale reliably and decouple teams. Designed the end-to-end offers lifecycle—create/update, eligibility & assignment, campaign/merchant linking with budget controls, Saga-based cancellation, and redemption. Lifted throughput 30%+ on high-TPS paths with reactive patterns and smart caching, and strengthened resilience with circuit breakers and automated incident handling. Secured internal/partner APIs behind a centralized gateway with managed secrets, built S3 → Spark data pipelines for merchant/redemption/authorization feeds, and shipped consistently via CI/CD to EKS.

Technology Architect
Infosys (full time) | Pune, Maharashtra, India

Aug 2016 - Apr 2023

Architected scalable software solutions, leading the design of comprehensive architectural blueprints and system diagrams. Developed responsive web interfaces using React.js and robust backends with Java and Spring Boot to enhance user experience and implemented event-driven microservices utilizing Kafka and adhered to industry frameworks, improving system reliability and performance.

Lead Software Engineer
Trimble Mobility Solutions India Pvt. Ltd. (full time) | Pune, Maharashtra, India

Oct 2011 - Aug 2016

Developed system for handling large-scale streaming GPS data, utilizing Netty 3 Sockets and a JBoss Queue.

Senior Software Engineer
BNP Paribas India Solutions Pvt. Ltd. (full time) | Chennai, Tamil Nadu, India

Apr 2009 - Oct 2011

UI development was performed using the ExtJS 3 UI Framework for a reconciliation project.

Software Engineer
Kpit Cummins Infosystsms Limited (full time) | Pune, Maharashtra, India

Dec 2006 - Dec 2008

Worked on the promotions section of the e-commerce website where based on the customer profile

Education

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Aug 1997 - Jun 2002

Bachelor's degree Electrical, Electronics and Communications Engineering

Certificates
Certified REST API Developer
HackerRank

Aug 2020

AWS Certified Solutions Architect Associate
Amazon Web Services (AWS)

Jan 2021