Aakash Kumar

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

aakash.kumar1980@yahoo.com
https://www.linkedin.com/in/aakash-kumar1980
https://github.com/aakashkumar1980?tab=repositories
+1 623 268 7048
Phoenix, Arizona, 85023, USA, Phoenix, Arizona, 85023, USA

Accomplished Senior/Lead Backend Engineer with 12+ years experience and 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
Apr 2023 - Present

American Express | Phoenix, Arizona, United States

Led AWS cloud-native microservices platform design and development, utilizing Kafka for event-driven architecture. Implemented performance enhancements with Redis and Vert.x, and ensured security via an Okta-secured API Gateway. Managed resilience using circuit breakers and orchestrated big data pipelines from S3 to Spark, with full application lifecycle support on Kubernetes (EKS) via CI/CD.

Technology Architect
Aug 2016 - Apr 2023

Infosys | Pune, Maharashtra, India

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
Oct 2011 - Aug 2016

Trimble Mobility Solutions India Pvt. Ltd. | Pune, Maharashtra, India

Designed and developed a robust system for handling large-scale streaming GPS data, utilizing JBoss Netty 3 Sockets and a JBoss Hornet Queue.
The system included a Complex Event Processing (CEP) module for generating real-time alerts for events such as overspeeding, consignment dispatch, pre-delivery status, and accident-prone areas.
Additionally, a batch processing module was implemented for various critical system data using the Java 5 Executors framework, and complex algorithms were developed within the SQL Server database via stored procedures.

Education

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
Aug 1997 - Jun 2002

Bachelor's degree Electrical, Electronics and Communications Engineering

Certificates

Certified REST API Developer
Aug 2020

HackerRank

AWS Certified Solutions Architect Associate
Jan 2021

Amazon Web Services (AWS)