Aravind Vallamkonda

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SUMMARY

Full-Stack Software Engineer with 3+ years of experience developing high-performance Java backend applications and React.js interfaces for financial services and banking systems. Specialized in Spring Boot microservices, performance optimization, and complex B2B integrations with frontend development capability. Proven track record of architecting distributed systems for India's national toll collection infrastructure, processing 15+ million daily transactions. Expert in database optimization, message queues, and AWS cloud deployment with demonstrated results reducing system response times and increasing throughput at enterprise scale.

TECHNICAL SKILLS

Programming: Java 8/17 (Expert), JavaScript, TypeScript, Go, Python, SQL, C
Backend Frameworks: Spring Boot, Spring MVC, Spring Security, Hibernate, Node.js, Express.js
Frontend Technologies: React.js, Next.js, HTML5, CSS3, Redux, Bootstrap, Tailwind CSS
API & Web Technologies: RESTful APIs, GraphQL, JWT, OAuth2, WebSockets, Microservices Architecture
Cloud & DevOps: AWS (EC2, S3, RDS, Lambda, ECS), Docker, Kubernetes, Jenkins, Terraform
Messaging & Event Streaming: Apache Kafka, RabbitMQ, Amazon SQS, Event-Driven Architecture
Databases & Storage: PostgreSQL, MySQL, Redis, Oracle, MongoDB, Database Design & Sharding
Testing & Monitoring: JUnit, Mockito, Jest, Cypress, Postman, Prometheus, Grafana, ELK Stack
Tools & Environments: Git, IntelliJ IDEA, VS Code, Jira, Maven, Gradle, npm, Webpack

PROFESSIONAL EXPERIENCE

Software Development Engineer   Mar '25 - Jul '25
Karios | *Ashburn, VA*

- **Infrastructure Automation:** Developed a secure artifact distribution service in Go using Gin framework with multi-stage approval workflows and cryptographic signature verification for FreeBSD-based datacenter systems.
- **Cloud Architecture:** Designed and deployed AWS production infrastructure using EC2, Application Load Balancer, and API Gateway with SSL termination, supporting distributed software updates across 200+ remote datacenter nodes.
- **Content Delivery Optimization:** Built an S3-based artifact repository with CloudFront CDN integration, reducing global software download latency from 800ms to 480ms for remote installations.
- **Database & API Design:** Architected PostgreSQL-backed metadata storage with RESTful APIs enabling real-time version synchronization and update status tracking across distributed FreeBSD environments.
- **Systems Programming:** Developed custom FreeBSD OS modifications and boot-level restoration mechanisms using ZFS snapshots and bectl automation for critical infrastructure management.
- **Administrative Portal:** Created React.js based control center with role-based access control, real-time server monitoring dashboards, and comprehensive audit trail functionality for operations teams.
- **DevOps Integration:** Integrated automated API testing using Postman collections within GitLab CI pipelines, implementing health endpoints and structured logging for deployment tracking.

Associate Application Developer   Nov '20 - Dec '22
National Payments Corporation Of India | *Hyderabad, India*

- **System Architecture:** Re-architected monolithic FASTag toll collection system into 5 Spring Boot microservices, reducing API response time from 1.0s to 0.4s under 15M+ daily transaction load.
- **Performance Optimization:** Replaced database-heavy polling (every 30 seconds) with Redis-based caching and Spring Task Scheduler, eliminating PostgreSQL bottlenecks and improving system stability.
- **Real-Time Processing:** Migrated batch settlement system to near real-time architecture using Apache Kafka message queues, enabling immediate transaction processing for 50+ banking partners
- **Database Engineering:** Implemented daily database sharding using hash-based partitioning of transaction IDs, optimizing query performance across 50M+ FASTag records.
- **Banking Integration Platform:** Developed a comprehensive React.js admin portal enabling 50+ banks to download settlement reports, manage dispute resolution, and access compliance documentation.
- **Infrastructure & Monitoring:** Deployed ELK Stack for centralized logging and implemented Grafana/Prometheus dashboards, reducing system troubleshooting time from hours to minutes.
- **Automation & DevOps:** Built Jenkins CI/CD pipelines with Docker containerization and Kubernetes deployment, automating daily compliance report generation for financial reconciliation.
- **Concurrent Processing:** Optimized multi-threaded transaction processing using custom thread pools and concurrent HashMaps, increasing parallel processing capacity from 8 to 100 virtual threads.

Software Development Engineer   Feb '20 - Oct '20
Cognizant Technology Services | *Bengaluru, India*

- **Backend Development:** Developed Spring MVC modules for automated employee onboarding workflows with status tracking, notification systems, and streamlined process execution.
- **System Integration:** Built REST API endpoints for access management and file handling, integrating with Salesforce CRM and HRMS platforms for seamless data flow.
- **Database Optimization:** Optimized Hibernate ORM queries and tuned connection pool configurations, reducing average API

response time by 20% and improving user experience.

- **Agile Development:** Participated in daily scrums, sprint planning, and retrospectives using Jira for backlog management and cross-functional team collaboration.

Projects

TaskFlow - Real-Time Collaboration Platform   **Jul '24 - Dec '24**
Technologies : Java, Spring Boot, React.js, WebSockets, Apache Kafka, Redis, PostgreSQL, Next.js

- **Real-Time Full-Stack System:** Developed collaborative task management platform with Next.js frontend and Spring Boot microservices, supporting real-time updates, file sharing, and team communication features.
- **Microservices Backend:** Architected event-driven system using Apache Kafka for inter-service communication, Redis for caching and session storage, and WebSocket servers for real-time collaboration features.
- **Interactive Frontend:** Built dynamic user interface with drag-and-drop functionality, real-time chat using WebSocket connections, notification system, and progressive web app (PWA) capabilities for mobile usage.
- **Performance & Scalability:** Implemented database sharding for user data, optimized React rendering with virtual scrolling, achieved sub-200ms API response times.

EduConnect - Student Information Management System   **Mar '24 - Jun '24**
Technologies : Java, Spring Boot, React.js, TypeScript, MySQL, Spring Security, Material-UI, Maven

- **Modern Full-Stack Application:** Built comprehensive student management system with TypeScript React frontend and Spring Boot backend, featuring course enrollment, grade tracking, and administrative dashboards.
- **Secure Backend Integration:** Developed Spring Security-based authentication with role-based authorization, RESTful APIs for CRUD operations, and real-time notifications using Server-Sent Events (SSE).
- **Frontend Features:** Implemented React Router for SPA navigation, Context API for global state management, Material-UI for professional design system, and responsive layouts supporting mobile-first design.
- **Data Management:** Designed normalized MySQL database with JPA/Hibernate ORM, implemented efficient pagination for large datasets, and created automated backup procedures with 99.9% data integrity.

EDUCATION

Masters in Computer Science - George Mason University | 3.93/4.0   **Jan '23 - Dec '24**
Bachelors in Computer Science - Amrita School of Engineering | 8.0/10   **Jul '16 - May '20**
Relevant Coursework: Distributed Systems, Operating Systems, Networking Fundamentals, Database Management, Virtualisation

Certifications

- **AWS Certified Developer – Associate**
- **Confluent: Developer Skills for Apache Kafka**