Jairaj Kumar

Mumbai, Maharashtra | jairajkumar3105@gmail.com | +917992243326 | linkedin.com/in/jairaj-kumar/ | jairajkumar.com

Profile

Software Engineer with hands-on experience in **distributed systems**, **security**, and **DevOps**. Skilled in designing, developing, and debugging scalable applications, optimizing system performance, and building resilient backend infrastructure.

Experience

Software Engineer 2, R3 Corda   July 2025 – present

- Contributed to the development of a **Central Bank Digital Currency (CBDC)** platform used by the Central Bank of the United Arab Emirates, ensuring secure, scalable, and compliant infrastructure components.
- **Designed and implemented** a custom PKI infrastructure with Keycloak to enable **custom cryptographic signatures**, ensuring secure and compliant token management.
- **Implemented a custom Keycloak SPI** to inject and manage signature certificates from the in-house PKI, providing key rotation capability for long-term security and compliance.
- **Debugged and fixed a thread leakage** issue in Keycloak's SPI layer, improving system stability and boosting throughput from **5 TPS to 20 TPS**.
- Implemented **JWT verification in APISIX (API Gateway)** through Keycloak token introspection, strengthening authentication and reducing latency.
- **Developed a Grafana dashboard** for Open Policy Agent (OPA) using Prometheus metrics and a custom log parser to monitor and analyze authorization performance, enabling proactive system tuning and observability.

Software Development Engineer 1, Jio Platforms Limited   October 2023 – July 2025

- **Designed, developed, and maintained** key features within the Media Engine, a core component for **JioMeet** and **JioEvents** applications, utilizing knowledge of **software architecture**.
- **Developed and debugged** a new microservice for **native recording**, reducing server infrastructure costs by 70% and latency by 60%.
- Designed, developed, and implemented a reusable **Load Balancer** SDK, optimizing request distribution across multiple servers, **building enhancements** to improve microservice performance and achieve 99.99% availability.
- Developed, integrated, and troubleshooted a **real-time transcription** service for JioMeet, enhancing accessibility and user experience while ensuring high accuracy and low latency.
- Engineered a robust **peer to peer architecture** for JioMeet and JioRoom, leveraging **TURN server** technology to overcome NAT challenges and ensure seamless connectivity for users.
- Diagnosed and resolved critical **production issues** (memory leaks, high CPU usage, Redis data inconsistency, concurrency bugs) by leveraging **monitoring services** (Node Exporter, cAdvisor, Prometheus, Grafana), performing root cause analysis to identify underlying issues, and implementing effective solutions, ensuring platform stability and performance; decreased CSM issues by 75%.

Intern, Cognizant Technology Solutions, Pune   January 2023 – May 2023

- Contributed to **developing and debugging** features for a MERN stack web application, using React to implement dynamic data loading and booking functionalities.

Skills

- **Programming Languages:** Python, Javascript/TypeScript, Bash, Kotlin, Java, C++
- **Web Technologies:** Node.js, Express, WebSocket, REST APIs, NGNIX, Flask, Django, HTML, CSS, JavaScript, React.js, Bootstrap, Spring Boot, Ktor
- **Databases:** MongoDB, MySQL, Redis
- **Tools:** Docker, Ansible, Git, GCP, AWS, Terraform, Postman, Grafana, Kubernetes, Azure Pipelines, RabbitMQ, ElasticSearch, CI/CD principles, Prometheous
- **Core Concepts:** Linux, Networking, Data Structure and Algorithms, Unit/Integration Testing, Object-Oriented Design, Code Reusability, Agile Methodology, Root Cause Analysis
- **Data Science & ML:** Machine Learning concepts, NLP techniques, Pandas, Matplotlib

Education

Savitribai Phule Pune University   July 2019 – July 2023

B.E. in Electronics and Telecommunication, Hons. in Data Science