Kartik Jha

Senior Backend Software Engineer - Distributed Systems & Platform Engineering

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💼 LinkedIn | 🔗 GitHub | 🌐 Portfolio

Professional Summary

7+ years of backend engineering experience building low-latency, high-concurrency, always-on distributed systems. Expert in JavaScript and Node.js, with strong proficiency in Python and Java. Deep experience across microservices architecture, cloud platforms (AWS), and event-driven system design. Proven ability to deliver production-grade services with 99.9% uptime, optimize performance at scale, and architect resilient systems for fintech, enterprise automation, and large-scale media streaming platforms.

Core Technical Expertise

Languages: JavaScript (Expert), Node.js (Expert), Python (Proficient), Java (Proficient), Go, TypeScript, Ruby

Backend Frameworks: Node.js, Express, Spring Boot, Django

Microservices: Service-oriented architecture, distributed systems, API gateways

Cloud & Infrastructure: AWS (Kubernetes, Lambda, EC2, ECS, CDK), Docker, GitOps, Jenkins, Terraform

Databases: PostgreSQL, MongoDB, MySQL, Redis (distributed caching)

Event Systems: Kafka, RabbitMQ, WebSockets

API Design: REST, gRPC, service mesh architecture

DevOps: CI/CD pipelines, automation, observability & production monitoring

Professional Experience

Technical Lead

Wissen Technologies (Diligent Enterprise Platform)   May 2024 - Present

Leading backend engineering for enterprise automation platform serving 10,000+ concurrent users

- **Infrastructure as Code Migration:** Migrated risk and governance data processing application from Terraform to AWS CDK, streamlining ECS-hosted infrastructure creation, management, and scaling. Implemented configurable IAM role and policy integration for enhanced security and operational flexibility.
- **Application Bootstrapping:** Architected and bootstrapped Node.js microservices for risk and governance platform, establishing contribution guidelines and development standards for engineering team onboarding and productivity.
- **High-Performance API Migration:** Migrated processing script manager and execution APIs handling 500 RPS with 150ms average response time, ensuring zero-downtime transition and maintaining SLA requirements.
- **Event-Driven Worker Framework:** Built custom Node.js background worker framework inspired by ActiveJob (Ruby on Rails), supporting dynamic queue management and configuration-driven job processing via JSON schemas.
- **Distributed Scheduler System:** Developed Node.js scheduler based on Rufus::Scheduler architecture, enabling custom pollers and configurable poll frequencies through JSON configuration for flexible task orchestration.
- **Production Deployment:** Deployed background worker and scheduler infrastructure as independent services, processing 4 jobs per second and scheduling 50 asynchronous events per second for distributed task execution.

Senior Software Engineer

puffles.io (Cryptocurrency Platform)   February 2024 - July 2024 (Freelancer)

Backend Platform Engineering for high-traffic NFT marketplace

- **Kubernetes Infrastructure:** Led migration from serverless architecture to self-managed Kubernetes cluster, enabling seamless scaling from 100 to 2,000 concurrent users while significantly improving cost efficiency and system control.
- **Performance Engineering:** Optimized Node.js backend achieving 10x concurrency improvement through smart connection pooling, intelligent caching strategies, and database query tuning that elevated user experience.
- **Load Testing Framework:** Built comprehensive load testing and capacity planning framework providing clear visibility into system behavior under stress, empowering confident production scaling decisions.

Senior Software Engineer

ViewLift (Media Streaming Platform)   July 2023 - September 2024 (Freelancer)

Real-time Systems & Payment Infrastructure for millions of users

- **gRPC Migration:** Migrated iOS subscription and payment execution APIs from TypeScript to Go with gRPC protocol, reducing request latency by 25% and improving system throughput for billing operations.
- **Cloud-Agnostic Services:** Rewrote subscription plan APIs in TypeScript and deployed as independent Kubernetes service, removing AWS Lambda dependency. Achieved 40% reduction in compute costs while exposing dual gRPC and HTTP endpoints.
- **Data Migration:** Executed data migration for Atlas Search integration while sunsetting Elasticsearch service, ensuring zero data loss and improved search performance.

Senior Software Engineer

BrowserStack (Developer Platform)   September 2021 - June 2023

Platform Engineering for global developer infrastructure serving millions of tests daily

- **Kubernetes Migration:** Collaborated on app signing certificate provisioning server migration from on-premise to AWS Kubernetes infrastructure, reducing deployment times from 45 to 20 minutes and improving system reliability.
- **Automated Recovery System:** Built Gradle-based terminal recovery system with programmable power adapters and Slack integration, improving device availability from 82% to 96% and minimizing manual intervention by 50%.
- **Device Recovery Optimization:** Integrated ADB connection poller component in device owner app to recover devices after user interaction or malicious activity, reducing downtime by 45%.
- **Distributed Caching (Java):** Developed SQLite-based cache for ephemeral state management during device monitoring and recovery, with concurrency helpers and auto-eviction mechanisms, reducing device state retrieval by 30%.
- **Performance Monitoring Tools:** Created child process-based device logger POC achieving 3-4x performance gains and developed internal gem for recording device recovery steps, improving debugging and developer productivity.

Software Engineer

Smallcase Technologies (Investment Platform)   September 2020 - August 2021

Event-Driven Financial Systems handling high-frequency trading

- **Kafka Event System:** Architected webhook interface ingesting high-volume order updates from multiple brokers using Kafka event bus with consumer group fanout and batch throttling, processing 1M+ daily events with <100ms latency.
- **Reliability Engineering:** Improved order ingestion reliability through RabbitMQ with at-least-once delivery policy and dead letter queue-based retry mechanisms.
- **Distributed Concurrency (Redis):** Built AutoSIP features with Redis queue lock interface ensuring multiple stock orders don't create duplicate batches, implementing optimistic locking that reduced failed transactions by 80% across distributed API instances.
- **Financial Algorithms:** Developed auto-reconciliation system for SIP orders using leaky bucket algorithm for rate-limiting, improving accuracy by 25% and enabling faster user communication for SIP changes.
- **Broker Integration:** Enhanced in-house broker stub to support regular and AMO (After Market Order) placement and execution with unified order management system.

Software Engineer

Disney+ Hotstar (Video Streaming)   January 2019 - September 2020

Video Platform Backend serving 400M+ users during peak events

- **Content Pipeline:** Developed sports VOD ingestion system interfacing with AWS Elemental Live encoders, implementing RabbitMQ-based polling and throttling that handled 500+ concurrent encoding jobs, reducing processing bottlenecks by 60% during peak sports events.
- **Spring Boot Cache (Java):** Built high-performance image tagging and identification system with REST APIs for personalized artwork, decreasing content retrieval by 40% through intelligent caching and supporting bulk image ingestion.
- **Partner Ingestion Platform:** Created comprehensive APIs and UI for partner content ingestion with standout bulk CSV upload feature using custom field mapping, reducing partner onboarding from days to hours and enabling seamless ingestion of 10,000+ content items per batch with 98% accuracy.
- **Workflow Automation:** Developed content preprocessing system with Airflow-based job scheduler using DAGs and retry mechanisms, processing 2,000+ content items daily with 95% first-run success rate and reducing preprocessing time by 40% through intelligent parallelization.

Software Engineer

Roboticwares (Fareye) (Logistics Platform)   August 2017 - January 2019

Early-career backend development for supply chain management systems

- **Auto-Assignment Service:** Built APIs for food delivery use cases accounting for proximity, delivery agent availability, and food preparation time, using optimistic concurrency conflict resolution for order reassignment on failure.
- **Full-Stack Development:** Led migration of validation module from Angular to React, boosting productivity. Built React-based shipment tracking UI with seamless Node.js/Ruby backend integration for exception management and analysis service.
- **API Integration (Java/Spring Boot):** Implemented Leaflet mapping service cache reducing external API calls by 15% and operational costs.

Education

Bachelor of Technology, Computer Science   May 2017

DIT University - Dehradun, Uttarakhand

GPA: 71.6%

Notable Open Source Projects

Load Test Utility

NPM CLI tool for comprehensive API performance testing with database metrics and JSON configuration support

Chrome AI Extension

Innovative prototype using browser-native Gemini Nano for intelligent content summarization

Code Quiver

Open-source utility library with modules for competitive programming in Java and JavaScript

Color Sticks

2D game engine focusing on performance optimization and color-based mechanics (Work in Progress)

Technical Leadership & Impact

◎ Scale Engineering
Built systems supporting 5,000+ concurrent users and 1M+ daily events

🛡 System Reliability
Achieved 99.9% uptime through comprehensive monitoring and automated recovery

🚀 Team Productivity
Led architectural migrations reducing deployment times by 50% and improving developer velocity

⚡ Performance Optimization
Consistently delivered 25-40% latency improvements across production systems

💰 Cost Efficiency
Delivered 15-40% infrastructure savings through optimization and right-sizing

🔧 Technology Modernization
Successfully migrated legacy systems to modern microservices architectures