ARIF RAHMAN

Senior Backend Engineer (Node.js & AWS Cloud)

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Available for Worldwide Remote Roles (Flexible US/EU/APAC Timezone Overlap)

PROFESSIONAL SUMMARY

High-performing **Senior Backend Engineer** with 4+ years of professional experience architecting enterprise **Node.js (TypeScript, NestJS, Express)** microservices, event-driven **AWS Cloud** platforms, and high-concurrency multi-tenant SaaS. Specialized in resilient API design, distributed queuing (BullMQ/Redis, AWS SQS), container orchestration (AWS ECS/K8s, Docker), and zero-trust security (Ory ReBAC). Proven track record scaling service throughput by **109× (to 2,868 RPS peak)**, slashing container heap memory by **98% (250MB to <5MB)**, cutting database latency by **99.6% (55s to <180ms)**, and accelerating data freshness by **>15× (from 15–25m to 50–90s)**. Proven expertise in asynchronous remote-first delivery and scalable cloud infrastructure.

TECHNICAL SKILLS

- **Core Languages & Runtime:** Node.js (TypeScript, NestJS, Express, Fastify), Python (FastAPI), Go, SQL, Rust (Axum)
- **AWS & Cloud Infrastructure:** AWS (ECS, Lambda, S3, RDS PostgreSQL, DynamoDB, SQS, SNS, CloudWatch), Kubernetes (K8s), Docker, Terraform, CI/CD (GitHub Actions)
- **Distributed Messaging & Queuing:** BullMQ, Redis (Distributed Mutex / Locks, Pub/Sub), Apache Pulsar (Kafka-compatible), RabbitMQ, AWS SQS/SNS, gRPC, WebSockets
- **Databases, Caching & ORM:** PostgreSQL (pgvector, pool tuning), Redis Caching, MongoDB, SQLite (FTS5), Prisma ORM, Knex.js, TypeORM, SQLAlchemy
- **Architecture, SRE & Compliance:** Multi-tenant SaaS, Transactional Outbox & Idempotency, Zero-Trust ReBAC (Ory Kratos/Keto), OpenTelemetry, Prometheus, Grafana, OpenAPI 3.0 / Swagger, GraphQL

WORK EXPERIENCE

ENTERPRISE PLATFORMS — Remote (Independent Contractor)

Jul 2022 – Present

Senior Backend Engineer / Tech Consultant

Enterprise Platforms (Independent Contractor) | Core SaaS & Cloud Infra

- **Enterprise Node.js & High-Throughput Scaling:** Architected resilient TypeScript / Node.js microservices handling enterprise workloads; boosted service throughput by **109× (from ~25 RPS to 2,868 RPS peak)** by tuning PostgreSQL connection pooling to a 50-conn sweet spot, eliminating database connection starvation during traffic surges.
- **Distributed Queue Resiliency & Queue Scoping (BullMQ / Redis):** Engineered distributed BullMQ/Redis worker pipelines with environment queue scoping (local:<hostname>) and atomic locks, achieving a **100% job execution rate**; serialized 40 simultaneous heavy queries within 200ms using Redis Mutex with 3s TTL to prevent cloud compute crashes.
- **Cloud Infrastructure, Streaming & Memory Savings (AWS ECS / K8s):** Re-engineered high-volume data ingestion pipelines using async generator stream chunkers, slashing container peak heap memory from **~250MB to <5MB (98% reduction)** under strict Kubernetes and AWS ECS container memory constraints.
- **Zero-Trust Security, Multi-Tenant ReBAC & Idempotency:** Designed multi-tenant schemas using Prisma ORM and Knex; integrated Ory Kratos (identity), Ory Keto relationship-based access control (Google Zanzibar ReBAC), and Hydra (OAuth2); engineered Transactional Outbox patterns ensuring financial idempotency with zero secret exposure.
- **Database Optimization & Query Acceleration:** Overhauled MongoDB aggregation pipelines by eliminating blocking $lookup joins, implementing compound ESR indexes, and applying hybrid embedding schemas, cutting query latency from **55s to <180ms (99.6% speedup)**.
- **RAG Pipeline Freshness & Ingestion Speed:** Accelerated RAG data freshness by **>15× (slashing latency from 15–25 min down to 50–90 sec)** via a proactive micro-batch poller for LlamaCloud with fast-path pgvector materialization and Redis distributed mutex locking.
- **Deep Ingestion Scale & Multi-Version Engine:** Engineered autonomous Google Drive folder synchronization across **16 nested folder levels (345–412 documents, 363 vectors)** with **100% READY completion** and zero manual database interventions.
- **Cloud Telephony & VoIP Cost Elimination:** Architected an in-browser WebRTC VoIP softphone (Vonage Client SDK + HMAC-SHA256 Base64URL ticket), eliminating **100% of cellular SIM costs** and syncing call dispositions into CRM chatlogs in **<1s**.
- **Frontend DOM Performance & Payload Optimization:** Slashed folder hierarchy preview rendering from **5–8s browser freeze down to <100ms** and reduced payload JSON by **85%** using backend sampleLimit and paginated inspector modals.
- **Streaming Video Microservices (targeted HTTP Range):** Architected video trimming microservices leveraging targeted HTTP Range requests and MKV EBML header parsing, saving **>99.9% network bandwidth (16MB vs 22.7GB per video)** and cutting latency by **10×**.

PT KALIMANTAN ENERGI LESTARI — South Kalimantan, Indonesia

Jul 2021 – Jan 2022

Engineer (Contract)

Natural Resources Sector

- **Inventory & Stock Automation:** Developed Python scripts and a local SQLite database to track inventory and automate stock data aggregation, replacing manual multi-sheet spreadsheet consolidation.
- **Reporting & Data Aggregation:** Streamlined daily operational reporting by building Python and Google Colab automation workflows, significantly reducing calculation errors and data consolidation turnaround time.

KEY ENGINEERING PROJECTS

- **Enterprise Multi-Tenant SaaS & ReBAC Security Platform (Node.js, TypeScript, AWS, Ory):** Architected distributed identity and permission infrastructure supporting fine-grained Google Zanzibar ReBAC across multi-tenant organizations with sub-millisecond check latency, automated token verification, and zero security leakage.
- **High-Throughput Broadcast Analytics & Media Microservices (Node.js, AWS S3, FFmpeg):** Engineered broadcast ingestion processing **165,000+ daily commercial ad spots** with 100% automated TVC classification, in-stream O(1) deduplication, frame-accurate trimming, and zero-downtime historical backfills.
- **Autonomous Conversational AI & Knowledge Base (FastAPI, WebSockets, Redis):** Architected real-time document RAG ingestion with cell-delta vector updates (passing **25/25 automated E2E assertions**) and connected live WebSockets (Socket.io) streaming dashboards tracking engagement across 6 enterprise automotive brands.

EDUCATION

UNIVERSITAS SRIWIJAYA — B.Eng. in Mining Engineering

Graduated Oct 2020

Engineering foundation with coursework in Applied Mathematics, Numerical Computation, Statistics & Computer Applications.

South Sumatra, Indonesia