ARIF RAHMAN

Senior Backend Engineer (Go & Distributed Systems)

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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 microservices, high-throughput streaming pipelines, and production distributed systems in **Go (Golang)**. Specialized in high-concurrency Go worker pools, Kubernetes orchestration, distributed messaging (Apache Pulsar & Kafka-compatible, BullMQ), and database bottleneck elimination. Proven track record scaling backend throughput by **109× (to 2,868 RPS peak)**, slashing container heap memory by **98% (250MB to <5MB)**, accelerating RAG freshness by **>15× (from 15–25m to 50–90s)**, cutting video network bandwidth by **>99.9%** via binary parsing, and reducing query latency by **99%+**. Proven expertise in asynchronous remote-first delivery.

TECHNICAL SKILLS

- **Core Languages & Frameworks:** Go (Standard Library, Gin, Go-Zero, Fiber), Python (FastAPI, Django), Node.js (NestJS, TypeScript), SQL, Rust (Axum)
- **Distributed Systems & Messaging:** Apache Pulsar & Kafka-compatible Event Streaming, RabbitMQ, BullMQ, AWS SQS, Redis Distributed Mutex/Locks, gRPC (Protobuf), WebSockets
- **Databases, Caching & ORM:** PostgreSQL (pgvector, pool tuning), MongoDB, Redis, SQLite (FTS5), Ent ORM, Prisma, SQLAlchemy, Mongoose
- **Cloud, DevOps & Observability:** Kubernetes (K8s), Docker, Terraform, CI/CD (GitHub Actions), AWS S3/ECS, OpenTelemetry, Prometheus, Grafana, Ory Stack (Kratos, Keto ReBAC, Hydra)
- **Architecture, SRE & Compliance:** High-Concurrency Worker Pools, True-Streaming Ingestion, Transactional Outbox & Idempotency, OpenAPI 3.0 / Swagger, GraphQL, Zero-Trust Access Control

WORK EXPERIENCE

ENTERPRISE PLATFORMS — Remote (Independent Contractor)

Jul 2022 – Present

Senior Backend Engineer / Tech Consultant

Enterprise Platforms (Independent Contractor) | Distributed Systems & High-Scale Infra

- **Throughput & Concurrency Scaling (Go & Postgres):** Scaled backend service throughput by **109× (from ~25 RPS to 2,868 RPS peak)** by implementing Go worker pools and tuning PostgreSQL connection pooling to a 50-conn sweet spot, eliminating database crashes during surge spikes.
- **Bandwidth-Efficient Video Processing (Native Go & FFmpeg):** Architected a native Go video trimming service leveraging targeted HTTP Range requests and MKV EBML header stitching, saving **>99.9% network bandwidth (16MB vs 22.7GB per video)** and cutting latency by **10×**.
- **Distributed Message Broker Optimization (Apache Pulsar & Kafka):** Stabilized Apache Pulsar under strict **1GB RAM / 1GB swap** container limits by throttling JVM heap and capping Netty/BookKeeper channels to **142 stable threads**, achieving **100% message reliability (22/22 PASS)**.
- **True-Streaming & Low-Memory Pipelines (Go / Node):** Re-engineered high-volume data ingestion pipelines using async generator chunkers and garbage-collected micro-batches, slashing container peak heap memory from **~250MB to <5MB (98% reduction)** under strict Kubernetes pod limits.
- **Queue Stability, Cross-Environment Isolation & Idempotency:** Resolved distributed queue stalls in BullMQ/Redis with re-entrant locks achieving a **100% job completion rate**; engineered dynamic queue scoping (local:<hostname>) and Redis Mutex with 3s TTL to serialize 40 simultaneous heavy queries within 200ms.
- **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:** Tested and validated autonomous Google Drive synchronization across **16 nested folder levels (345–412 documents, 363 vectors)** with **100% READY completion** and zero manual database interventions.
- **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)**.
- **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**.
- **Zero-Trust Security, Multi-Tenant ReBAC & Compliance:** Designed multi-tenant schemas using Prisma ORM; integrated Ory Kratos (identity), Ory Keto relationship-based access control (ReBAC), and Hydra (OAuth2) with automated cryptographic signing and zero secret exposure.

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 TV Advertising Analytics Platform (Go, FFmpeg, Microservices):** Engineered a high-throughput broadcast pipeline processing **165,000+ daily commercial ad spots** with 100% automated TVC/NTC classification, in-stream O(1) deduplication, frame-accurate trimming, and zero-downtime historical backfills.
- **Distributed Message Broker Optimization (Apache Pulsar & Microservices):** Stabilized Apache Pulsar under strict **1GB RAM / 1GB swap** container limits by throttling JVM heap and capping Netty/BookKeeper channels to **142 stable threads**, achieving **100% message reliability (22/22 PASS)**.
- **Autonomous Conversational AI & Knowledge Base (Python, FastAPI, WebSockets):** 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