

Kareem Hamed Ibrahim

Software Engineer | Go & Distributed Systems

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Profiles

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Summary

Software Engineer with 3+ years of experience specializing in backend optimization and high-concurrency architectures. Proven track record of reducing latency in high-traffic production environments, including performance improvement through Go-based microservices migration. Focused on Hexagonal Architecture, gRPC, and building observable systems using OpenTelemetry and Jaeger.

Experience

Mada Software Remote
Software Engineer 03/2024 – Present

- High-Performance Systems Migration: Engineered a specialized Go microservice to replace a legacy PHP/Laravel analytics engine, reducing dashboard data retrieval latency from 25 seconds to 500ms (98% reduction) for datasets exceeding 10 million records.
- Optimized Data Throughput: Developed a worker pool pattern with goroutines and a Redis caching layer to pre-warm aggregate data every 5 minutes, ensuring sub-second latency for complex queries.
- Infrastructure Automation: Built and maintained CI/CD pipelines using GitHub Actions, reducing production deployment errors by 80%.
- Scalable API Design: Architected and optimized RESTful APIs for high-traffic e-commerce and mobile backends.

<https://madastore.net>

PikyHost LTD Remote
Fullstack Developer 06/2023 – 03/2025

Designed and implemented multi-vendor platform.

<https://www.pikyhost.com/en>

Chaara app Remote
Backend Developer 06/2023 – 07/2024

- Designed and implemented secure authentication and data workflows for large-scale management systems.
- Developed complex multi-vendor and real-time auction modules with 70% performance improvement through proactive optimization.

<https://chaaraapp.es/>

Projects

High-Performance Analytics Sidecar (Go, Redis, gRPC)

- The Problem: A legacy Laravel monolithic dashboard reached a breaking point with 10M+ records, causing a 25-second query latency that timed out user sessions and stalled business operations.
- Architectural Solution: Designed and deployed a specialized Go service to offload heavy computation from the PHP monolith.
- Worker Pool Concurrency: Implemented a worker pattern to process large data shards in parallel, maximizing CPU utilization beyond PHP's single-threaded limitations.
- Proactive Cache Warming: Developed a background orchestration routine that performs aggregate calculations every 5 minutes and pushes results to Redis, achieving a 98% latency reduction (500ms response time).

E-Commerce Microservices Platform (Go 1.25, gRPC, OpenTelemetry)

- Distributed Architecture: Built a 4-service microservices ecosystem (User, Product, Cart, Order) using gRPC and Protocol Buffers for high-speed, type-safe inter-service communication.
- Advanced Observability: Integrated Jaeger/OpenTelemetry to profile system performance; successfully identified and mitigated a 75ms CPU-bound bottleneck in password hashing logic.
- Fault Tolerance: Implemented Circuit Breakers and Graceful Shutdown patterns to ensure system resilience during partial service degradation.

Point of Sale (POS) API (Go, Hexagonal Architecture, Redis)

- Clean Architecture: Implemented Hexagonal (Ports & Adapters) architecture to decouple business logic from external dependencies (PostgreSQL/Redis), significantly increasing testability.
- Security & Resilience: Engineered IP-based Rate Limiting and a JWT Blacklist session management system using Redis for secure, high-performance logout.
- Concurrency: Utilized goroutines for asynchronous logging (Zap) and cache invalidation strategies, maintaining consistent performance under high request loads.

Distributed Ride-Sharing Backend (Go, RabbitMQ, WebSockets)

- Developed a horizontally scalable backend using event-driven architecture with RabbitMQ to decouple billing and trip services.
- Implemented real-time bidirectional communication using WebSockets for live driver-rider coordination.

Education

Suez University

Bachelor • 3.41

Computer Science

Suez, Egypt • 2020-2024

Skills

Languages

Go, PHP (Laravel), SQL, Concurrency

Architectural Patterns

Hexagonal (Ports & Adapters), Microservices, Event Driven, gRPC/Protobuf, RESTful Design

Distributed Systems

Redis, RabbitMQ, Circuit Breakers, Rate Limiting, Graceful Degradation

Data Persistence

PostgreSQL, MySQL, MongoDB, Database Indexing & Query Optimization

Observability & DevOps

OpenTelemetry, Jaeger (Distributed Tracing), Docker, GitHub Actions (CI/CD), Linux Administration

Engineering Practices

Clean Architecture, SOLID Principles, Unit Testing