

Muhammad Kamran Arshad

Lead Integration Engineer & Senior Backend Developer

Engineering Manager | Integration Architect | Technical Lead

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PROFESSIONAL SUMMARY

Results-driven Engineering Manager and Lead Integration Engineer with 15+ years of experience building, leading, and scaling high-performing engineering teams in healthcare IT. Proven ability to define technical vision, mentor engineers from junior to senior level, and deliver mission-critical EMR integration platforms — processing 100K+ HL7/FHIR messages per day with end-to-end latency of 3–4 seconds across disparate clinical systems. Deep expertise in Mirth Connect, Apache Kafka, Node.js, NestJS, and HIPAA-compliant architecture. Targeting senior leadership roles — Engineering Manager, Integration Architect, or Technical Lead — where I can drive both people growth and product excellence.

PROFESSIONAL EXPERIENCE

Lead Integration Engineer 2025 – Present

RainsStella · 2025 – Present

- Built and lead a team of 4 integration engineers — defined Mirth channel design standards, testing practices, and deployment process, growing each engineer from onboarding to production-ready.
- Set technical direction for the integration practice, mentoring the team in HL7/FHIR standards, Mirth Connect architecture, and clinical data transformation patterns.
- Architect bi-directional HL7 v2 / FHIR R4 transformation workflows across EMR and MDM platforms, processing 100K+ clinical messages per day with 3–4 second end-to-end delivery.
- Designed a real-time Grafana observability dashboard monitoring live message flow (sent / received / error / queued), per-channel health, server uptime, and destination system liveness.
- Enforced HIPAA-compliant data handling and validation layers maintaining clinical data integrity across all integration nodes.

Senior Backend Developer Mar 2023 – 2025

Stella Technology · Mar 2023 – 2025 (~2 years)

- **Inbox Health:** Integrated multiple EMRs into a unified healthcare billing platform via HL7/FHIR Mirth Connect pipelines — Node.js + PostgreSQL backend with Grafana observability dashboards.
- **Inbox Health — Batch Claims Processing Pipeline:** Engineered an end-to-end automated billing workflow: receive claim batches from EMR systems → parse and categorise individual claims → persist to PostgreSQL → trigger AWS Lambda batch jobs for parallel processing → calculate insurance coverage vs patient responsibility (e.g. \$100 insurance coverage, \$5 patient balance on a \$105 treatment) → automatically dispatch itemised invoices to both the insurance company and the patient.
- **EGabon:** Improved clinical data exchange across international healthcare systems using HL7 interoperability via Mirth Connect.
- **MediCliq:** Led full database migration, schema redesign, Laravel API overhaul, and Apache Kafka integration for real-time microservices streaming.
- **Green Health:** Built NestJS + MongoDB APIs with Amazon SQS for scalable, high-throughput async messaging.

Technical Lead Sep 2018 – Mar 2022

FraudLens (Zigron) · Sep 2018 – Mar 2022 (3.5 years)

- Managed a cross-functional team of 10 engineers across backend, frontend, and QA — ran sprint planning, code reviews, and kept delivery on schedule for US healthcare clients.
- Mentored junior to senior engineers, ran internship programme, collaborated with US-based stakeholders.
- Automated CI/CD pipelines with Jenkins & Docker, implemented Bitbucket branching strategies, maintained code quality.

Senior Software Engineer Dec 2012 – Jan 2018

FraudLens (Zigron) · Dec 2012 – Jan 2018 (~5 years)

- Developed healthcare fraud detection pipelines in PHP (Fusebox) with Elasticsearch for real-time querying across large clinical datasets.
- Implemented Geo Map visualisations for geographic fraud pattern analysis.

- Designed and built the company-wide HRM system end-to-end — payroll, employee management, and reporting — adopted organisation-wide.

Associate Software Engineer → Web Developer 2008 – 2012

Zigron / Frizcon · Oct 2008 – Dec 2012

- Built online course portals (Laravel), company websites (WordPress), and custom CMS solutions — the foundation of a 15+ year engineering career.

CORE SKILLS & TECHNOLOGIES

Healthcare Integration Mirth Connect · HL7 v2 · FHIR R4 · EHR/EMR · HIPAA · Clinical Interoperability

Backend Development Node.js · NestJS · JavaScript · PHP · Laravel · REST APIs · Microservices

Databases PostgreSQL · MySQL · MongoDB · SQL Server · Elasticsearch

Messaging & Streaming Apache Kafka · Amazon SQS · AWS Lambda · Event-Driven Architecture

DevOps & Observability Docker · Jenkins · CI/CD · AWS · Linux · Grafana · Server Health Monitoring

Leadership & People Team Building · Mentoring · Agile · Cross-functional Leadership · Roadmap Planning

Tools & Platforms GitHub · GitLab · Jira · Confluence · Bitbucket · Mirth Connect Admin

AI Tools ChatGPT · Claude · GitHub Copilot · Perplexity · Cursor

KEY PROJECTS

Inbox Health

Unified billing platform integrating multiple EMRs. HL7/FHIR Mirth Connect pipelines processing 100K+ messages/day, with 3–4 second host-to-destination delivery. Includes automated batch claims processing pipeline: EMR ingest → parse → DB → Lambda → cost-split (insurance/patient) → dual invoice dispatch.

EGabon

HL7 interoperability via Mirth Connect across international healthcare systems, improving clinical data exchange and reducing integration errors.

MediCliq

Full DB migration, schema redesign, Laravel API overhaul, and Apache Kafka integration for real-time event streaming across microservices.

Green Health

NestJS + MongoDB APIs with Amazon SQS for scalable, high-throughput async messaging and healthcare data processing.

Grafana Ops Dashboard

Real-time observability: live message flow (sent/received/error/queued), channel health, server uptime, and destination system liveness checks across all nodes.

FraudLens HRM

End-to-end Human Resource Management system — payroll, employee management, and reporting — built and deployed company-wide.

EDUCATION

Master of Science — Computer Science

Preston University, Islamabad Campus · 2008

Bachelor of Science — Computer Science

Undergraduate foundation in software engineering

CERTIFICATIONS & LEARNING

HIPAA Compliance Certification — Healthcare data privacy, security & regulatory standards

Continuous Professional Development — Active self-learner via Udemy — backend architecture, DevOps, cloud integration, and emerging AI tooling

Languages: English (Professional) · Urdu (Native)