

DENISH RANA

Backend Engineer · Distributed Systems & Messaging Infrastructure
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SUMMARY

Backend engineer, 7 years, Node.js. I build the parts of a system where correctness under load matters — event-driven routing, idempotent transactions and billing, protocol-level networking. Most recently 2.5 years building a carrier-grade SMS routing and billing platform over SMPP from scratch: SMSC and ESME, a multi-node Kafka routing core, and an idempotent serverless billing engine. Comfortable owning a system end to end: data model, queueing, transactional correctness and production observability.

EXPERIENCE

Software Engineer (Backend)

Nov 2020 – Present

Techsphere Softwares LLP

Surat, India

- Architected and built from scratch a carrier-grade **SMS routing and billing platform over SMPP**, acting as both **SMSC and ESME** (TLS, multi-session binds, health checks, graceful shutdown) — **~1M messages/month** at ~100 msg/sec on a modest EC2 footprint, replacing a licensed commercial platform billed per account and per unit of traffic.
- Designed a **multi-node Kafka routing core** where each node owns its own topic and messages hop node-to-node, with a dedicated priority lane for delivery receipts; shared-nothing and horizontally scalable by design.
- Built the routing intelligence — **least-cost routing**, weighted and priority-based vendor distribution, regex rules on source, destination, country and MCCMNC, screening, masking and sender rewriting — with real-time HLR/MCCMNC lookup and database fallback.
- Implemented the full **delivery-receipt (DLR) lifecycle**: correlation across asynchronous vendor callbacks, status-code translation and synthetic receipts on route exhaustion, plus concurrency-safe multipart SMS assembly.
- Built the **billing engine** as a serverless **AWS Lambda** consumer off **MSK** auto-scaling on consumer lag: three billing modes, prepaid and postpaid accounts with credit limits, **atomic idempotent transactions using row-level locking**, and a Redis-backed margin tracker that automatically disables loss-making routes.
- Replaced the client's per-operation SaaS automation stack with an in-house **webhook platform** handling **millions of MT/MO requests monthly** on two load-balanced servers (Node.js cluster + **AWS SQS**), with bounded re-queue retry, failure alerting grouped by category and metadata, and a pluggable endpoint registry that made new outbound targets a configuration change rather than a code change.
- Delivered coaching-platform backend — signature-verified Typeform ingestion, category scoring pipeline, S3 pre-signed media streaming, BullMQ bulk B2B onboarding. Mentored junior developers and owned delivery from design through production.

Programmer Analyst (Backend)

Oct 2019 – Nov 2020

Coruscate Solutions

Surat, India

- Owned the backend of a **multi-tenant e-scooter sharing platform** serving **15+ operator clients** on Node.js and Sails.js, with per-operator configuration and custom feature sets.
- Controlled IoT scooters in real time over **MQTT** — lock/unlock and telemetry driving the ride lifecycle — with geofencing, dynamic pricing, the fare-calculation algorithm and live map tracking; integrated **Stripe and Paytm**.
- Owned schema migrations, cron jobs and deployments, and led the build from requirements to release.

Front End Developer

Apr 2019 – Sep 2019

SocialPilot

Ahmedabad, India

- Built React and Redux analytics dashboards across **five social networks** (Facebook, Twitter, LinkedIn, Pinterest, Google My Business) with Chart.js, and led the migration of legacy PHP screens to React.

TECHNICAL SKILLS

Backend & Distributed Systems: Node.js, Express.js, JavaScript, REST APIs, Event-Driven Architecture, Apache Kafka, AWS MSK, Redis, BullMQ, SMPP, MQTT, Idempotency, Retry & Delivery Semantics, Graceful Shutdown

Databases & Search: PostgreSQL, MongoDB, Sequelize, Row-Level Locking, Indexing, OpenSearch / Elasticsearch

Cloud & Observability: AWS (Lambda, SQS, MSK, EC2, S3), Load Balancing, Horizontal Scaling, Node.js Clustering, Grafana, Loki

Frontend & Tools: React, Redux, Git, Postman, Jira

EDUCATION

Dharmsinh Desai University

B.Tech in Computer Engineering

2015 – 2019

Gujarat, India