Moe Alothman

Senior Software Engineer - Backend / Distributed Systems
(313) 247-2218 | alothmanmoe@gmail.com | github.com/alothmanmoe | https://moealothman.com/

Summary

Senior Software Engineer specializing in high-scale distributed systems and event-driven architecture. Comfortable owning systems end-to-end, architecting critical backend systems, leading large-scale production migrations, and optimizing infrastructure powering hundreds of thousands of events per second.

Technical Skills

Languages: Java, Kotlin, Groovy, JavaScript/NodeJS, Python
Distributed Systems: Kafka (Confluent/MSK), event-driven microservices, SSE/WebSocket delivery infrastructure
Cloud & Infra: AWS (EC2, DynamoDB, MemoryDB, RDS, IAM, CloudWatch, S3), Terraform, Spinnaker, Jenkins, CI/CD
Observability: DataDog, SumoLogic
Other: LaunchDarkly, Memcached, REST APIs, GraphQL, Spring Boot, Ratpack, Spock, Kotest, Git/Github

Experience

Samsung SmartThings - Remote (Detroit, MI)
Senior Software Engineer - Software Engineer (Jan 2022 – Present)

- **Architected and launched Hourglass** - A sharded distributed scheduling system built on DynamoDB + MemoryDB, replacing a Cassandra-backed monolith. Designed a dual-write migration strategy using LaunchDarkly-gated API endpoints to keep schedules in sync across both systems during cutover. Executed a live migration of 90M+ schedules over two weeks using weighted routing.
- **Owned and scaled the event pipeline** - A distributed system processing 400k events/sec and 10M concurrent subscriptions globally across a microservice architecture. Contributed significantly to the pipeline redesign, introducing event matching and routing layers that improved reliability and throughput.
- **Reduced event pipeline load by 30%** - Solved proactive event storms from Samsung TV backends. Designed a subscription notification system that triggered ephemeral event delivery only when active subscribers existed. Introduced a targetSubscriptions field to scope initial-state events to newly created subscriptions only.
- **Designed and implemented a connection-draining deployment system** - Solved thundering herd reconnection storms on deploys by building a slow-drain pipeline that gradually closes connections over a configurable window via a new API, allowing clients to reconnect to the new cluster gracefully, unblocking deployments that would otherwise take 8+ hours per region due to long connection TTLs.
- **Saved $20k+/month in infrastructure costs** - Through three initiatives: (1) upgraded Kafka consumers to client 4.0 with the new consumer rebalance protocol, enabling proper autoscaling and eliminating over-provisioning. (2) consolidated underutilized Kafka clusters across prod and lower environments with acceptable latency trade-offs. (3) upgraded Cassandra read replicas and halved the reader count, saving ~$8k/month alone.
- **Founded and led the Event Review Board** - Defining schema and usage standards for event types across the platform. Created intake documentation, triaged incoming requests, generated scoped work tickets, and coordinated timelines with multiple teams.
- Improved monitoring/alerting with SumoLogic and DataDog. Contributed to incident response during 24/7 on-call rotations and partnered with global engineering teams in the US and Korea on architecture, performance, and reliability.
- Mentored an intern and led onboarding for 2 new team members, accelerating their ramp-up on a complex distributed system.

Eagle Path Express - Software Engineer (Feb 2018 – Mar 2020)

- Built a commercial freight management platform (React + Java + GraphQL) that improved operational efficiency by 60%. Integrated partner APIs and optimized internal tooling to reduce manual processing time.