

AMITAVA GHOSH

Senior Software Engineer

DETAILS

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ESSENTIAL SKILLS

Backend Development and Architecture

Containerization

Networking

Tracing, Logging and Monitoring

Performance and Automation

Distributed Systems and Transactions

PROFILE

As a Platform Engineer I have a decent understanding in building scalable back-end systems and working with distributed systems. With expertise in SQL, Golang, and JavaScript, I have developed and maintained high-performance software solutions. I am familiar with AWS and have experience with NoSQL databases.

My passion lies in building development tools, SDKs, and debugging to improve code quality and performance. I am eager to architect scalable distributed systems and contribute to the development of innovative products.

Additionally, I am interested in expanding my DevOps skill set. I am a dedicated and reliable professional, always striving to deliver high-quality code and contribute to the success of the team.

EMPLOYMENT HISTORY

Senior Software Engineer, Sequoia Consulting Group

Bengaluru

JUL 2020-AUG 2023

Mostly worked on platform engineering, architecting systems, building tools, services and libraries Determining performance bottleneck, by benchmarking, logging, tracing, profiling and establishing proper engg. practices.

Notification Service

- Using SQS, designed, build and deployed a new notification service on AWS, to send Emails and Push notifications. The new system enabled tracking of notifications and reduced failures and re-sends.
- Built a makeshift monitoring and alerting utility to track the health of worker and incase delivery rates are going down.

- Added some cli tools to allow easy debugging/processing of individual messages.
- Added postman collections and swagger documentation and later figured out a way using protoc-gen-openapi to generate go/python models and api documentation using openapi v2 yaml. This provided an easier way to generate stripe like documentation.

This being a part of a Platform team, collaborated with other teams on the API.

Authentication

- Solved issues regarding SSO Login for certain providers like azure and google. This helped retaining the clients who were facing problems onboarding employees
- Designed and Implemented an oauth2 flow with verify terms api for a segment of our clients, to allow other companies to share their employee data.
- For the above, implemented an RBAC solution with casbin as well, and implemented a simple ABAC logic.

Enhancements n Stuff

- Collaborated with other teams on Datadog integration to figure out slow running queries, and helped with finding what to index in some services.
- Built and maintained the Golang SDK for the devs of the company
- Introduced structure in logging and added a way to add request id to incoming requests
- Build and distributed a library to decrypt files using KMS encryption with s3crypto in golong. This was used by other teams in other languages as well.
- Build a simple redis backed url shortner.
- Introduced some basic API response and execution time logging since proper monitoring and alerting setup wasn't there.
- Developed a db-resolver for a library to segregate read and write traffic. But we didn't have any read replicas :D .

S3 data encryption and migration

During securing older file uploads, planned the database migration for smooth, fast and correct outcomes. Worked with other teams to get the data migrated for their services.

Also worked with the frontend team to sort out CORS header read permission issue for getting the file name.

As a part of the above work, also had to build a url shortner using redis, designed the common api and underlying logic to store, expire and authorize the file downloads.

Using the above enhancement, and AWS Insights, figured out the reason for timeouts during login, in tight deadlines.

Production issues

Helped identify the login timeouts by leveraging the above built tools, practices and learned Cloudwatch Insights Query Language in the process. Prepared an RCA and presented solutions to avoid the db locking issue causing the login timeout.

Helped devops with finding issues with redis connection using strace in docker. This later helped us in improving the response times by caching tokens and other information.

Quickly added functionality to an existing CSV Manager to upload temperature data for a client to enable them allow employees to Return to Work.

Other Stuff

- Built a CSV manager to handle upload of multiple types of user info.
- Built a GraphQL fronting to get medical and other healthcare details from multiple providers.
- Benchmarking APIs and functions to make things efficient
- Refactored Authentication Service code and documented all the flows.

Product Engineer, Gojek

Bengaluru

OCT 2016-JUN 2020

Worked across 5 projects mostly on platform team, splitting monoliths into microservices, and setting up the gateway for entire org, authentication. Along with some experience on ecommerce products.

Authentication

- Collaborated while splitting and migrating the Rails login code into smaller go lang service.
- Centralizing authentication system for customer, driver and merchant auth.
- Splitting out the OTP and Notifications and Segmentation in different services during the Rails monolith split
- Setup and write plugins for **Kong** (Api Gateway based on nginx), which handled all the incoming customer, merchant traffic for different services, reducing load on authentication service. The logs generated were later used in Machine Learning models to understand customer behaviour
- For the above Kong API Gateway, also came up with standard YAML configuration to onboard APIs, enabling consolidation on API and better visibility of security teams.

- Analyzing TCP dumps for properly configuring timeouts and keepalives, for the above, and establishing a template for configuration of apis for the same.
- Handle deployment and system failures at large scale, by writing scripts and generating alerts for monitoring in datadog and later with TICK scripts
- Build notification service for organization using RabbitMQ. This helped to reduce the amount of money spent on sending notifications using Text messages. Also for text messages we could distribute across multiple providers like Twilio, Infobip etc.
- Worked personally on building tools and chatbots for easier deployment configuration and finding instances to ssh for debugging.
- Resolved issues in code and in performance on various database indexes, migration scripts.
- Using caching to speed up systems and reduce database loads.
- Adding rate limiters that helped in reduction of frauds against customers.

Ecommerce

- Worked on e-commerce platform for instant good delivery, pushing data into different Kafka topics, consuming them, indexing them in Elasticsearch.
- Optimizing API for CSV upload and record creation with 4 million records every 3-4 hours.
- Worked on the other flows, like order creation, listing based on geolocation using PostgreSQL and S2.

Software Engineer, Leftshift

Pune

JUL 2016-SEP 2016

The company was later acquired by Gojek

Work Involved

- Developing API based applications with Nodejs, React for Sequoia Hackathon. API integration were done in mobile app as well
- Worked on a app review aggregator API, to aggregate reviews for Gojek app, and put them in structured format, and send them using AWS SES. Which would be used by Gojek engineers to run some classification and sentiment analysis

Software Engineer, Kreeti Technologies

Kolkata

AUG 2014-JUL 2016

Work Involved

- Full stack development of an internal payment web applications
- Handle deployment on Heroku for above.
- Back-end and Front-end development for a social network app with React, Nodejs, MongoDB.
- Experiment with new technologies like elixir, angular, react, brunch.

EDUCATION QUALIFICATION

B.Tech in Electronics and Communication, **West Bengal Univeristy of Technology**

AUG 2014-JUL 2016

SKILLS

- **Golang, JavaScript, Bash**, Python, Rails (4, 7), Lua
- RDBMS: MySQL, PostgreSQL
- NoSQL: Cassandra (minimal), InfluxDB, **Redis**
- MQ: SQS, Kafka
- Cloud stuff: VMs, Firewall(ufw), Certificate management, VPS, **Docker**, AWS(minimal)
- Kong(nginx), Git, Terraform, Wireshark, strace, **React**, CCloudwatch Insights
- Basic idea of kubernetes

I like trying out new languages. Presently learning myself some Kubernetes and OS and writing compilers. And maybe Gen AI models for later