

Work Experience

Senior Software Engineer Observability	Grab Singapore	Aug 2021–Present
<ul style="list-style-type: none">• PIC for Grab's logging stack – Manage >1PiB Opensearch clusters and logging pipeline• Migrated logging clusters from Elasticsearch + Opendistro to Opensearch without downtime• Added synthetic testing to the logging pipeline to measure indexing and query latencies and define SLAs• Developed self-serve backfilling pipeline for rehydrating logs into Opensearch from S3 archives to support longer-retention• Developed self-serve pipeline for engineers to create metrics and monitors from logs• Identified and fixed performance bottlenecks e.g. created Opensearch query WAF to prevent expensive queries on the cluster which allowed us to open the cluster for programmatic querying and reduced p95 query latencies by >50%, optimized LDAP authorization flow in the security plugin which reduced p95 Kibana login time by >50%• Identified and drove cost savings initiatives e.g. enabled Kafka rack awareness which reduced cross-AZ costs by 50%, switched to Graviton-based workloads which reduced total cluster costs by ~20%		
Software Engineer Intern (Backend) Payments team	Shopee Singapore	Jan 2021 – June 2021
<ul style="list-style-type: none">• Created Prometheus metrics to trace performance bottlenecks when connecting to upstreams• Developed pre-deployment validation for stored credentials to prevent configuration errors when connecting to partner APIs		
Software Engineer Intern (Full Stack) Drivers team	Ninja Van Singapore	Apr 2020 – Aug 2020
<ul style="list-style-type: none">• Designed and built a 2-way cross-platform messaging system for communication during parcel delivery		
DevOps / SRE Intern	Upguard California, US	Aug 2019 - Mar 2020
<ul style="list-style-type: none">• Developed release package upload tool for Forward Deploy Engineers to install packages on customers' VMs• Oversaw Nginx version upgrade and configurations for enabling Modsecurity WAF		
Software Engineer Intern (Backend) Shippers team	Ninja Van Singapore	May 2019 – Aug 2019
<ul style="list-style-type: none">• Developed a webhook history tool to allow tracking and searching of fired webhooks		

Education

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| • B.COMP. COMPUTER SCIENCE , NATIONAL UNIVERSITY OF SINGAPORE
Awarded NUS Undergraduate Merit Scholarship | 2017–2021 |
| • NUS OVERSEAS COLLEGES (SILICON VALLEY) | 2019-2020 |

Technologies and Languages

- Languages: Python, Java (Scripting: Bash)
- Technologies: Elasticsearch, Kafka
- Other: Google Cloud Associate Cloud Engineer Certification

Projects

- **Opensearch Cold Tier using JuiceFS (FUSE backed storage)**
Trialed using JuiceFS (FUSE) as the cold tier in our Opensearch logging cluster as part of a cost-reduction initiative.
- **Benchmarking alternative Storage Engines (e.g. Clickhouse, Quickwit, Loki)**
Benchmarking alternative storage engines e.g. Clickhouse, Quickwit and Loki as part of a cost-reduction initiative for the logging cluster.
- **Rack Aware Kafka Producer (Logstash Plugin)**
Developed Rack aware Kafka producer Logstash Plugin to reduce cross-az costs.
- **RCA Troubleshooting LLM Service**
Developed tool to automate investigation of common troubleshooting flows e.g. panics, Hystrix errors during an outage and present summarized findings in a single Grafana dashboard. Aimed to help reduce context-switching between platforms and surface only relevant signals to prevent information-overload.
- **Clickhouse Backup**
Created script to periodically back up Clickhouse cluster metadata and data into S3.
- **Deploying configuration over SSM**
Created flow to perform ansible-push over AWS SSM for canary testing configuration changes and deploying configuration updates fleet-wide.
- **Azure Buffering Layer**
Setup Eventhub buffer in Azure for backpressure to prevent logs from being lost when there are network issues between Azure and AWS
- **YPT Stop Human Trafficking Hackathon**
Achieved 1st in a Tech for Good hackathon which aimed to use transportation tech to solve human trafficking.
- **Developers' Week Hackathon (Travel Gamification)**
Setup infrastructure to build & deploy the application.
- **NASA Hackathon by WeSolve**
Developed an AR iOS mobile application to transform space into a virtual playground.
- **Container Vulnerability Enumeration (CVE) Scanner**
Built tool to build, push and scan container images for vulnerabilities.