Akshat Mahajan

akshatm.bkk@gmail.com (distributed systems person) www.akshatm.com

Experience

Cloudflare Remote (Boston, MA)

Systems Engineer, Argo Smart Routing 2/2022 - Present

- Owned a dataplane of UDP / TCP / IP network proxies in Rust serving > 500,000 requests per second, designed to find the fastest route to a web server
- Improved parts of proxy performance by 1000x (100 ms → 100 μs) by moving disabled next-hop checks to in-memory cache populated out-of-band
- Designed and delivered version 2 of the analytics pipeline for reacting to TCP / UDP smart-routing events in a single quarter, increasing events captured by 10x
- Improved performance bottleneck observability by integrating with eBPF-based packet loss tracing and socket ancillary data to capture kernel wait time

Systems Engineer Intern (Master's), Argo Smart Routing 5/2021 - 8/2021

- Built an A/B testing framework for Orpheus; implemented multiple novel global route computation algorithms before product went generally available

PlanGrid → Autodesk (acquisition) San Francisco, CA

Site Reliability Engineer 9/2017 - 7/2019

- Managed networking, routing and reliability for over 100+ services across 2 intl. data centers with self-hosted Kubernetes clusters, Python, Terraform, Salt + AWS
- Built Plangrid's in-house canary release platform, allowing any backend service to catch bugs before being exposed to 100% traffic, using Istio and Spinnaker
- Improved disaster recovery response objectives by 95%+ by migrating live multi-TB Postgres write masters to streaming replication

BrightEdge Technologies San Mateo, CA

Software Engineer 7/2016 - 9/2017

- Sole maintainer of an SEO optimization system – ingested 40 million websites each week using a distributed batch processing pipeline built on Hadoop
- Quintupled network throughput after leading a switch to a binary wire protocol for intra-datacenter traffic (200 MB/s → 1 GB/s), using Apache Thrift
- Slashed monitoring latency by 96% by implementing priority queueing that "remembers" slow websites and diverts them to specialised channels

Projects Of Note

Open Source

privacy-go, a gRPC fork that secures sensitive data within Golang microservices by encrypting protobuf messages and enforcing function-level access control

Qbox, a Layer 7 network proxy coordinator for distributed sagas, simplifying monolith to microservice migration

Contributed a feature to Netflix's Spinnaker, allowing developers to add custom Datadog tags as first-class feature in its monitoring ecosystem

Contributed a feature to Hashicorp's Packer, allowing developers to attach multiple temporary security groups in AWS AMI builds

caprice, a Go client for RANDOM.org's API, capable of generating truly random non-deterministic data for cryptographic purposes. *(unmaintained)*

More projects available at `https://github.com/AkshatM`

Education

Brown University Providence, RI

Masters of Science, Computer Science Jan. 2020 - Dec. 2021

Teaching Assistant, CS1380: Distributed Systems

Research Assistant, Kubernetes operators research

University of California, Los Angeles (UCLA) Los Angeles, CA

Bachelor of Science, Physics, July 2012 - June 2016

cum Laude with College Honours

Proficiencies

Rust, Go, Python, Javascript, Node.js, Saltstack, Terraform, AWS, Kubernetes, shell, Linux, eBPF, SQL (PostgreSQL, Clickhouse, SQLite), Hbase. Used in personal projects: C, OCaML, x86 assembly.