Akshat Mahajan

(distributed systems person)

www.akshatm.com

EXPERIENCE

Cloudflare

Systems Engineer, Argo Smart Routing

Remote (Boston, MA) 2/2022 - Present

• Owned a dataplane of UDP / TCP / IP network proxies in Rust serving > 800k requests per second globally, designed to find the fastest route to a web server

• Improved parts of proxy performance by 10,000x (90 ms \rightarrow 8 μs) by profiling and designing in-memory caches populated out-of-band on the critical path

• Removed multiple single points of failure: built at-scale key rotation for Wireguard tunnels, and designed + delivered a highly-available analytics pipeline

• Added out-of-application performance bottleneck observability through use of socket ancillary data and eBPF-based packet loss detection in the kernel

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 \rightarrow **Autodesk** (acquisition)

San Francisco, CA 9/2017 - 7/2019

Site Reliability Engineer

• 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 architecture

BrightEdge Technologies

Software Engineer

San Mateo, CA 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

 $\bullet\,$ Quintupled network throughput after leading a switch to a binary wire protocol for intra-datacenter traffic (200 MB/s \to 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 protobul messages and enforcing function-level access control Gbox, 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 Masters of Science, Computer Science Teaching Assistant, CS1380: Distributed Systems Research Assistant, Kubernetes operators research	Providence, RI Jan. 2020 - Dec. 2021
				University of California, Los Angeles (UCLA) Bachelor of Science, Physics, cum Laude with College Honours	Los Angeles, CA July 2012 - June 2016
	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.			