Samuel Naser

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Work Experience

Aviatrix Santa Clara, CA
Staff Software Engineer *May 2023 to Present*

- Built metrics pipeline responsible for ingesting, storing, and visualizing critical customer metrics emitted from Aviatrix control plane and data plane components; modernized metrics infrastructure by migrating to Prometheus and OpenTelemetry throughout our stack
- Authored design for Kubernetes integration with Aviatrix Distributed Cloud Firewall, enabling customers to enforce security policies targeting Kubernetes pods, namespaces, and services
- Extended end-to-end test framework to provide automated coverage for Aviatrix platform upgrades, improving release quality and reliability, and reducing manual testing overhead

Google Sunnyvale, CA
Software Engineer, Cloud, Anthos Service Mesh *November 2020 to March 2023*

- Served as Istio Environments Working Group Lead, Istio Upgrade Working Group Lead, Istio 1.10 and 1.15 Release Manager (open-source, CNCF service mesh with 40k+ GitHub stars and highest adoption in the space), owned and drove features in these domains (e.g. revision tags, *"ProxyConfig"* CRD, automated upgrade testing, Helm chart restructures)
- Designed and implemented managed multi-cluster service-discovery for Anthos Service Mesh, providing an API to automatically enable workloads to seamlessly communicate and discover one another from cross Kubernetes clusters
- Revamped the Anthos Service Mesh CI pipeline by replacing complex, unmaintained Bash scripts with Go
- Created the Anthos Service Mesh Terraform module (`https://github.com/terraform-google-modules/terraform-goog` `tree/main/modules/asm`), streamlining ASM deployment for users

Internships

Google Sunnyvale, CA
Software Engineering Intern, Cloud, Istio Security Team *June 2019 to September 2019*

- Authored design proposal for and implemented Istio feature that reworked the mechanism through which Citadel (the control-plane component responsible for certificate issuance and rotation) targets namespaces
- Implemented TLS mode that allowed Istio Gateways (ingress and egress points for Istio mesh traffic) to communicate over encrypted connections with and enforce policies for internal workloads with Istio's Secret Discovery Service (SDS) mode enabled. SDS mode allows Istio to provision encryption keys and certificates in-memory rather than mounting them to a file system
- Designed and implemented subcommand for *istioctl proxy-status* which compared the active secrets on an Envoy sidecar with the secrets active on its Citadel node agent (authored debug endpoint for the agent which made this possible). Created the *istioctl proxy-config secret* command to examine active Envoy sidecar secrets
- Created and tested the default Grafana dashboard for visualizing Citadel metrics, contributed to Istio's migration from Prometheus to OpenCensus metrics. Made metrics collected in the Citadel node agent accessible from Prometheus

Belvedere Trading Chicago, IL
Software Engineering Intern *January 2019 to March 2019*

- Designed and implemented application which enabled traders to toggle which strike prices should be evaluated in our internal option pricing engine, now in active use through all trading teams across the firm
- Spearheaded effort to Dockerize web-team applications, created internal base image with core dependencies for other teams to base their images on
- Created full stack web application with which traders and tech leads were able to communicate with one another through posting, voting, and commenting on project proposals

Google Sunnyvale, CA
Software Engineering Intern, Cloud, Kubernetes Node Team *September 2018 to December 2018*

- Leveraged the OpenCensus framework to add distributed tracing to Kubernetes object lifecycles, made it possible to visualize these traces in Stackdriver, Zipkin, and various other tracing backends
- Authored Kubernetes Enhancement Proposal which introduced a model for distributed tracing in Kubernetes (*"Leveraging Distributed Tracing to Understand Kubernetes Object Lifecycles"*)
- Created mutating admission webhook which injects trace context into Kubernetes objects, which is now a kubernetes-sigs repo (`https://github.com/kubernetes-sigs/mutating-trace-admission-controller`)
- Utilized the custom trace tooling I created to isolate bugs in production Google Kubernetes Engine clusters

Amino Payments Philadelphia, PA
Software Engineering Intern *June 2018 to August 2018*

- Processed high-throughput advertisement transaction data using Apache Kafka and Apache Samza, reassembled the digital transaction chain in real-time, deployed data-streaming backend onto AWS infrastructure
- Migrated from JSON to redesigned Apache Avro models at each step of our Java data-streaming backend, dramatically increased message transmission speeds and improved code structure with this refactor
- Developed and maintained critical Python utilities which transformed outputs from our data pipeline into a format usable by our API, configured CircleCI test environment and wrote integration tests for these utilities

Education

Northwestern University Evanston, IL
BS, Computer Science, 3.91 GPA *September 2017 to June 2020*
Relevant coursework: Systems Programming in Rust, Data Structures and Management, Human Computer Interaction, Introduction to Computer Graphics, Machine Learning: Foundations and Algorithms, Operating Systems, Distributed Systems, Database Systems, Networking, Programming Languages, Design and Analysis of Algorithms, Computer Systems Security, Introduction to Computer Systems

University of Louisville Louisville, KY
BS, Computer Science, 4.000 GPA *August 2016 to August 2017*
Relevant coursework: Object Oriented Design with Java, Introduction to Programming Languages (C), Data Science, Calculus II, Calculus III, Differential Equations