

Apoorv Kothari

apoorv@toidiu.com | toidiu.com

Summary

A forward-thinking engineering leader, with an approach rooted in data-driven development, rigorous testing methodologies, designing seamless user experience, and expertise spanning from the application to networking software stack. Passionate about cryptography, information security, low level performance, BPF, and highly scalable architecture.

Work Experience

AWS

Seattle, WA

Software Engineer – Cryptography

Feb. 2021 - Present

- Maintained AWS's opensource IETF implementation of QUIC ([s2n-quic](#)) and TLS ([s2n-tls](#)) cryptographic network protocols.
- Helped Cloudfront migrate to s2n-quic for H3 support ; resulted in 20% better performance and 30% less CPU usage.
- Implemented asynchronous ClientHello handling for s2n-quic; bridging FFI boundaries from Rust to C. Worked closely with Cloudfront to deliver [asynchronous certificate loading](#) which reduced the memory footprint required across their fleet.
- Conducted investigations and lead team discussions on various large-scale projects which influenced API design and internal implementation. Highlights include: [Ack-frequency](#) analysis, implementing a zero-cost [event framework](#), adding QUIC Connection Migration support, adding [Client support](#) to s2n-quic, [mitigating Optimistic Ack Attack](#), enabling [pedantic memory checks with Valgrind](#), adding [OpenSSL 3.0 support](#).
- Implemented [Netbench Orchestrator](#), enabling production-like, reproducible, and automated testing of various network protocols on EC2 hosts. Enabled the team to make data-driven decisions when developing our libraries.

Software Engineer – EC2

Nov. 2019 - Feb. 2021

- Deployed a new production service for fingerprinting similar EC2 hosts. At launch the service handled 10,000+ API calls across 15+ AWS regions with zero failures and downtime.
- Implemented automatic detection of stuck fail-safe-switches across 15+ AWS regions, which helped reduce oncall pages, increased availability of services and resulted in cost savings of \$100,000/year.
- Added granular AZ support to fail-safe-switches, resulting in increased availability services and cost savings of \$250,000/year.

iHeartRadio

New York, NY

Infrastructure/Backend Software Engineer

Feb. 2017 - Mar. 2019

- Worked in a small team to migrate the entire Scala micro-service backend from Akka Cluster to Kubernetes (deployed on AWS using [kops](#)).
- Helped define and implement a highly-available Kubernetes deployment/rollback process for the Backend services team. Worked with the SRE team to standardize the process for all teams across the company, while balancing cost, reliability and maintenance overhead.
- Led multiple stakeholders across Data Science/Design/iOS teams to launch a new Music Recommendation micro-service.
- Helped mitigate outage risks during MongoDB upgrades and mutations by implementing [embed MongoDB](#) testing for all services.

Consulting

Remote

Independent Consultant

Mar. 2016 - Feb. 2017

- Work closely with the [Shatterproof](#) non-profit leadership team as a technical advisor. Translated business requirements into technical-specification documents, interviewed candidates and helped assess software systems proposed by outside contractors
- Delivered a project management app for a construction firm, featuring google drive backed storage, distributed synchronization across multiple devices, text/PDF/image editing and seamless offline support.

TouchLab

New York, NY

Android Engineer

Sept. 2014 - Jan. 2016

- Forest Watcher (project highlight): The goal was to equip rangers in Africa with deforestation map data. The Android app implementation featured offline mapping, offline data storage and online/offline data sync. Supporting [talk](#).
- Collaborated closely with clients to launch Android apps. Responsibilities included system architecture, backend/front-end development, testing, and app releases.

Rubenstein Technology Group

New York, NY

Software Engineer

Oct. 2013 - Aug. 2014

- Worked closely with the Design lead to launch a responsive website for a large law firm.

Education

The Cooper Union for the Advancement of Science and Art

New York, NY

Bachelor of Engineering

Graduation 2012

- Full-tuition Academic Scholarship