

Apoorv Kothari

apoorv@toidiu.com | toidiu.com

Summary

A forward-thinking engineering leader, with an approach rooted in data-driven development, rigorous testing methodologies, and designing seamless user experience. Professional experience includes working on low-level cryptographic networking libraries, Backend and Infrastructure engineering, to mobile engineering. Especially passionate about cryptography, network engineering, Rust, and BPF.

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.
- Facilitated Cloudfront migrating to s2n-quic for H3 support, resulting in ~20% better performance while using ~30% less CPU resources.
- Implemented [asynchronous certificate loading](#), bridging FFI boundaries from Rust to C; working closely across teams to integrate and reduce memory footprint required across their fleet.
- Secured team consensus and implemented large-scale library features which influenced public APIs; highlights include: [Ack-frequency analysis](#), implementing a zero-cost [event framework](#), QUIC Connection Migration support, [Client support](#) to s2n-quic, [mitigating Optimistic Ack Attack](#), [pedantic memory checks with Valgrind](#), [OpenSSL 3.0 support](#).
- Created [Netbench Orchestrator](#) which enabled production-like, reproducible, and automated testing of network protocols on EC2 hosts, and informed data-driven decisions in library development.

Software Engineer – EC2

Nov. 2019 - Feb. 2021

- Deployed a production critical service for fingerprinting similar EC2 hosts; at launch the service handled ~10,000+ API calls across 15+ AWS regions without errors and downtime.
- Implemented granular fail-safe switch across 15+ AWS regions, which helped reduce oncall pages, increased availability of services, and resulted in cost savings of ~\$100,000/year.
- Simplified codebase and deployments by replacing 2 unmaintained metrics libraries with ~100 lines of code.
- Led multiple incident investigations to identify root-causes, track impact, remediate impacted customers, and finally implement long-term fixes.

iHeartRadio

New York, NY

Infrastructure/Backend Software Engineer

Feb. 2017 - Mar. 2019

- Led the launch of Music Recommendation service, aligning stakeholders across Data Science/iOS/Design teams. Responsibilities included designing APIs, architecting a resilient storage with rollback capabilities and implementing service logic.
- Migrated Scala micro-service backend from Akka Cluster to Kubernetes over 6+ months.
- Worked as part of small team to launch a highly-available Kubernetes deployment/rollback process for the Backend services team (deployed on AWS using [kops](#)). Worked with SRE team to setup additional Kubernetes clusters and standardize the process for all teams across the company, while balancing cost, reliability and maintenance overhead.
- Mitigated outage risks during MongoDB upgrades and mutations by implementing [embed MongoDB](#) testing for all services.

Consulting

Remote

Independent Consultant

Mar. 2016 - Feb. 2017

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

TouchLab

New York, NY

Android Engineer

Sept. 2014 - Jan. 2016

- Delivered a solution to assist Forest rangers with deforestation reporting; featuring offline support, custom map rendering, and 3rd party data collection. Here is some supplemental information: [meetup presentation slides](#) and [project mission](#).
- Collaborated with clients to develop Android based solutions, from system-architecture, and backend to testing, and releases.

Education

The Cooper Union for the Advancement of Science and Art

New York, NY

Bachelor of Engineering | Full-tuition Academic Scholarship

Graduation 2012