Zachary Owens

zowens2009@gmail.com • github.com/zowens • linkedin.com/in/ztowens
Portland, OR

CAREER SUMMARY

Distributed systems engineer and architect with experience designing and evolving business-critical systems with both strategic and tactical solutions. Areas of focus are in data-in-motion, distributed storage/replication, analytics systems, cloud computing and Kubernetes.

SKILLS

Languages	Java, Go, Rust, Kotlin, Python, Javascript
Systems	Kafka, Kubernetes, Redis, Cassandra, Zookeeper, MySQL, PostgreSQL
Tools	Java Flight Recorder, Docker, Terraform, Git, Vim, Bash, Node.js

EXPERIENCE

Principal Software Engineer & Architect New Relic (Portland, OR)   *Apr 2021 - Current*

Technical leader for NRDB, a custom timeseries database that ingests, stores and queries petabytes of telemetry data per day.

- Optimized cloud spend of the company's data platform, directly reduced COGS unit costs by 42% over three fiscal quarters.
- Built autoscaling into NRDB to leverage elastic compute in cloud deployments. As a result, the NRDB query system was able to handle higher volumes of query demand during peak hours at lower overall cost.
- Reduced memory pressure on the ingest path of NRDB through pooled byte buffers, better data structures and using optimized sorting algorithms. This work improved the event ingest path reliability and increased throughput per machine by around 25%.
- Implemented capability to run queries for 10x longer than previously supported, allowing customers to query more of their data with improved query SLIs.
- Lead the architecture for deploying NRDB into Azure. As a result of deploying the data platform to Azure, the company was able to capture additional revenue for specific verticals.
- Mentored multiple under-represented engineers for career growth and progression.

Lead Software Engineer New Relic (Portland, OR)   *Jan 2019 - Apr 2021*

Team lead and key technical contributor to NRDB.

- Migrated NRDB to AWS using a cellular architecture. The vision for this project was risky but had a large payoff in terms of improved reliability for customers. For the company, data ingest was able to grow by 5x over the previous environment.
- Lead the effort to build the NRDB control plane on top of Kubernetes by building a custom operator. The Kubernetes operator reduced human interaction involved in operating multiple clusters of NRDB.
- Implemented performance improvements to speed up query execution within the custom columnar database. The predicate pushdown optimizations reduced file I/O through query analysis and resulted in a direct reduction in compute resources.

Principal Architect Nike (Beaverton, OR)   *Mar 2016 - Jan 2019*

Architect for multiple e-commerce domains powering Nike.com, mobile apps and digital marketing.

- Lead the design of AI services for product recommendations with offline–trained ML models using multiple data sources in the primary data lake. Revenue and conversion increased when enabled on product sort for Nike.com search results.
- Implemented an enterprise-wide publish/subscribe system with webhook notifications to internal and third-party systems.
- Presented at AWS re:invent conference session detailing Nike's use of DynamoDB, highlighting the unique challenges with peak traffic.

Senior Software Engineer Nike (Beaverton, OR)   *Feb 2015 - Mar 2016*

Senior Software Engineer Interactive Intelligence (Indianapolis, IN)   *Aug 2014 - Feb 2015*

Software Engineer Interactive Intelligence (Indianapolis, IN)   *Jan 2013 - Aug 2014*

OPEN SOURCE

github.com/zowens/crc32c Hardware-optimized implementation of Castagnoli CRC32 in Rust. Known production usage at AWS.

github.com/zowens/paxos-rs Implementation of Multi-Paxos written in Rust.

github.com/zowens/commitlog Building block for segmented log files or write ahead logs for databases written in Rust.

github.com/zowens/chain-replication Framework for building replicated state machines on top of the chain replication.

EDUCATION

Bachelors of Science in Computer Science, Indiana University (Bloomington, IN)
Highest Distinction and Departmental Honors