Nan Zhang

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Technical Skills

Programming Languages: Java, Golang, Python, C/C++, Bash, Lua, JavaScript
Frameworks & Libraries: Protocol Buffers, Guava, JUnit, Mockito, Netty, React, Node.js, Flask
Developer Tools: GCP, AWS, A/B Test, Git, Vim, GDB, IntelliJ, VisualVM, Airtable

Experience

Software Engineer Nov. 2021 – Current
Snap Inc. *Mountain View, CA*

- Designed and implemented a micro-service *Task Batcher* from scratch. Explored several different technical solutions and their tradeoffs. Leveraged **GCP Pub/Sub** to publish and consume messages, **GKE** to manage workloads, and **Cloud Tasks** to enqueue batched task. It significantly reduced 50x traffic to Cloud Tasks queue and successfully improved system efficiency.
- Identified a couple of opportunities by funnel analysis to improve **DAU** and deepen **user engagement**. Had 10+ A/B studies to test different notification copies, rankings, and rule relaxations. Rolled out multiple studies with **1M+ incremental DAU impact**.
- Actively contributed to operation excellence by investigating system bottlenecks and solving incidents. Set up metrics and alerts to monitor SLO, exceptions, and traffic to dependency services. Led the collaboration with infra team to reduce extra gRPC calls and save cost.

Member of Technical Staff 3 July 2019 – Nov. 2021
VMware *Palo Alto, CA*

- Contributed to *VMware NSX* datastore solution: open source project **CorfuDB**, a consistency platform designed around the abstraction of a shared log. CorfuDB objects are in-memory, highly available data structures providing linearizable read/write operations and strictly serializable transactions.
- Owned **performance** PCC of bugzilla, triaged 30+ performance bugs by leveraging logs, metrics and profiling tools like Yourkit Profiler. Identified root causes of application slowness and memory leaks by looking into snapshots and heap dumps. Optimized the efficiency of object read/write and scanAndFilter. Provided product engineers as well as quality teams with database usage advice to improve the efficiency of their workflows.
- Joined as a firefighter when **log replication** project was short of hands and close to release. Designed & implemented an integration test framework, came up with multiple scenarios to cover all network failure and topology change test cases. Owned replication PCC, triaged tens of related bugs and created a series of patches to extend the functionality and observability of replication. Published a research paper regarding its design and architecture as a co-author in RADIO 2021.
- Led the **next generation of compaction** project from scratch. Designed a scalable and fault tolerant distributed solution to compact the shared log. By sharding and parallel read/write, it significantly improved memory and CPU utilization.

Software Engineer July 2017 – Oct. 2017
Bilibili Inc. *Shanghai, China*

- Implemented *Bilibili Video Cache Invoker* by Golang to collect information of cached video and I/O stats, provided multiple cache query APIs to the central coordinator, improved video cache hit ratio on 300+ CDN nodes.
- Utilized *go pprof* to investigate memory leaks and cpu bottlenecks, decreased memory & CPU usage significantly.
- Deployed the cache query tool on all CDN edge nodes and reduced video loading time by 80ms in average.
- Designed and built a network tool based on Golang and OpenResty to measure the latency and throughput between any two video streaming CDN nodes periodically and instantly.

Education

Carnegie Mellon University Moffett Field, CA
M.S. in Software Engineering, GPA3.79/4 *Jan. 2018 – May 2019*
Courses: Computer Systems, Cloud Infrastructures, Cloud Computing, Foundations of Software Engineering

Sun Yat-sen University Guangzhou, China
B.S. in Software Engineering, GPA3.8/4 *Aug. 2013 – Jun. 2017*
Core Courses: Data Structures, Operating Systems, Computer Networks, Database Systems, Compilers